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ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals published in the years* 1900-1950, 3rd Edit. (1952). London: Butterworths Scientific Publications.

Chloromycetin* Tincture 10%

a product of Parke-Davis original research—represents a remarkable advance in the treatment of contagious foot rot in sheep. Clinical trials in Australia[1], resulted in over 80% clinical cure with one application and approximately 100% after the second. Similar success has been reported in this country[2].

1. *Austr. vet. J.* 1954, 30:209 2. *Vet. Rec.* 1955, 67:74.

over 80% success against CONTAGIOUS FOOT ROT after *ONE* application

TREATMENT Diseased tissue should be carefully pared away and Chloromycetin Tincture 10% applied with a stiff brush.

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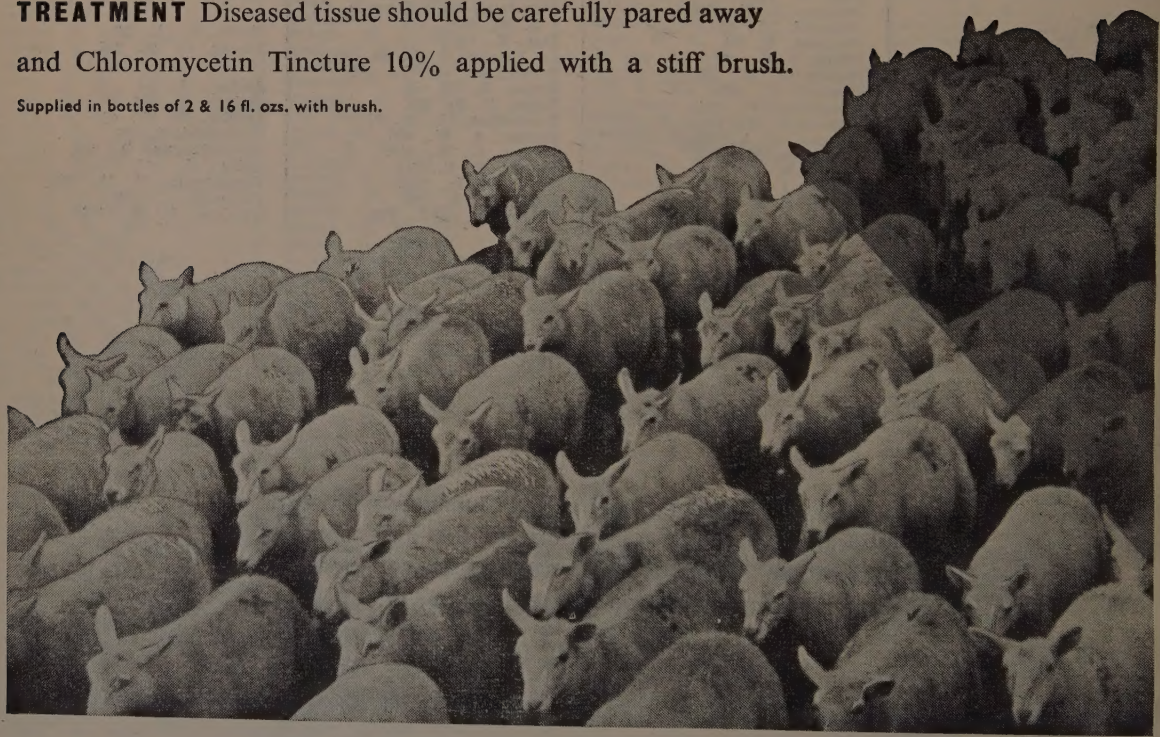

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LIST OF PUBLICATIONS SEARCHED BY COMMONWEALTH BUREAU OF ANIMAL HEALTH

(a) JOURNALS

Title	*Abbreviation*
Acta Allergologica. Denmark.	*Acta allerg., Kbh.*
Acta Endocrinologica. Denmark.	*Acta endocr., Copenhagen.*
Acta Microbiologica. Poland	*Acta microbiol. polon.*
Acta Pathologica et Microbiologica Scandinavica. Denmark.	*Acta path. microbiol. scand.*
Acta Tropica. Switzerland.	*Acta trop., Basel.*
Acta Tuberculosea Scandinavica. Denmark.	*Acta tuberc. scand.*
Acta Veterinaria. Yugoslavia.	*Acta vet., Belgrade.*
Acta Veterinaria. Academiae Scientiarum Hungaricae. Hungary.	*Acta vet., hung.*
Advancement of Science. Great Britain.	*Advanc. Sci., Lond.*
Agricultural Chemicals. U.S.A.	*Agric. Chemic.*
Agricultural Gazette of New South Wales. Australia.	*Agric. Gaz. N.S.W.*
Agricultural Institute Review. Canada.	*Agric. Inst. Rev.*
Agricultural Journal. Colony of Fiji.	*Agric. J., Fiji.*
Agricultural Progress. Great Britain.	*Agric. Progr.*
Agricultural Review. Great Britain.	*Agric. Rev., Lond.*
Agriculture. Great Britain.	*Agriculture, Lond.*
Agriculture and Animal Husbandry. India.	*Agric. Anim. Husb. India.*
Agronomia y Veterinaria. Argentina.	*Agron. y Vet.*
Allied Veterinarian. U.S.A.	*Allied Vet.*
American Journal of Anatomy. U.S.A.	*Amer. J. Anat.*
American Journal of Clinical Pathology. U.S.A.	*Amer. J. clin. Path.*
American Journal of Hygiene. U.S.A.	*Amer. J. Hyg.*
American Journal of Pathology. U.S.A.	*Amer. J. Path.*
American Journal of Physiology. U.S.A.	*Amer. J. Physiol.*
American Journal of Public Health. U.S.A.	*Amer. J. publ. Hlth.*
American Journal of Tropical Medicine and Hygiene. U.S.A.	*Amer. J. trop. Med. Hyg.*
American Journal of Veterinary Research. U.S.A.	*Amer. J. vet. Res.*
American Review of Tuberculosis. U.S.A.	*Amer. Rev. Tuberc.*
Anais dos Serviços de Veterinária e Indústria Animal. Moçambique.	*An. Serv. Vet. Indust. anim., Moçambique.*
Anales de la Facultad de Veterinaria. Uruguay.	*An. Fac. Vet. Montevideo.*
Anales de la Facultad de Veterinaria de la Universidad de Madrid.	*An. Fac. Vet. Madrid.*
Anales del Instituto de Higiene de Montevideo. Uruguay.	*An. Inst. Hig. Montevideo.*
Anales del Instituto de Investigaciones Veterinarias. Spain.	*An. Inst. Invest. vet., Madrid*
Analyst. Great Britain.	*Analyst.*
Analytical Abstracts. Great Britain.	*Analyt. Abstr.*
Anatomical Record. U.S.A.	*Anat. Rec.*
Animal Breeding Abstracts. Great Britain.	*Anim. Breed. Abstr.*
Annales de l'Institut Pasteur. France.	*Ann. Inst. Pasteur.*
Annales de l'Institut Pasteur de Lille. France.	*Ann. Inst. Pasteur Lille.*
Annales de Médecine Vétérinaire. Belgium.	*Ann. Méd. vét.*
Annales de Parasitologie Humaine et Comparée. France.	*Ann. Parasit. hum. comp.*
Annales du Service de la Production Animal. Tunisia.	*Ann. Serv. Prod. anim., Tunis*
Annales de la Société Belge de Médicine Tropicale. Belgium.	*Ann. Soc. belge Méd. trop.*
Annales Universitatis Mariae Curie-Skłodowska. Section DD. Poland.	*Ann. Univ. M. Curie-Skłodowska.*
Annali della Facoltà di Medicina Veterinaria. Univ. di Pisa. Italy.	*Ann. Fac. Med. vet. Pisa.*
Annals of Applied Biology. Great Britain.	*Ann. appl. Biol.*
Annals of the New York Academy of Sciences. U.S.A.	*Ann. N.Y. Acad. Sci.*
Annals of Tropical Medicine and Parasitology. Great Britain.	*Ann. trop. Med. Parasit.*
Antibiotics & Chemotherapy. U.S.A.	*Antibiot. & Chemother.*
Antonie van Leeuwenhoek. Journal of Microbiology and Serology. Netherlands.	*Leeuwenhoek ned. Tijdschr.*
Anuarul Institutului de Patologie si Igienă Animală. Roumania.	*Anu. Inst. Pat. Igien. anim.,*
Applied Microbiology. U.S.A.	*Appl. Microbiol.*
Araneta Journal of Agriculture. Philippines.	*Araneta J. Agric.*
Archiv für Experimentelle Veterinärmedizin. Germany.	*Arch. exp. VetMed.*
Archiv für Geflügelkunde. Germany.	*Arch. Geflügelk.*
Archiv für die Gesamte Virusforschung. Austria.	*Arch. ges. Virusforsch.*
Archiv für Lebensmittelhygiene. *(Formerly* Lebensmittel-tierarzt). Germany.	*Arch. Lebensmittelhyg.*
Archives of Biochemistry and Biophysics. U.S.A.	*Arch. Biochem.*
Archives de l'Institut d'Hessarek. Iran.	*Arch. Inst. Hessarek.*
Archives de l'Institut Pasteur d'Algérie. Algeria.	*Arch. Inst. Pasteur Algér.*
Archives de l'Institut Pasteur du Maroc. Morocco.	*Arch. Inst. Pasteur Maroc.*
Archives de l'Institut Pasteur de Tunis. Tunisia.	*Arch. Inst. Pasteur Tunis*

Title	*Abbreviation*
Archives of Pathology. U.S.A.	*Arch. Path.*
Archivio Veterinario Italiano. Italy.	*Arch. Vet. Ital.*
Arquivos do Instituto Bacteriológico Câmera Pestana. Portugal.	*Arch. Inst. bact. Cam. Pest.*
Archivos de Veterinaria Practica. Spain.	*Arch. vet. Pract., Corunna.*
Archivos de Zootecnia. Spain.	*Arch. Zootec., Cordoba.*
Arkhiv Patologii. U.S.S.R.	*Arkh. Pat.*
Arquivos de Biologia e Tecnologia. Brazil.	*Arch. Biol., Curitiba.*
Arquivos da Escola Superior de Veterinária do Estado de Minas Gerais. Brazil.	*Arch. Esc. Vet. Minas Gerais.*
Arquivos do Instituto Biologico. Departmento de Defesa Sanitária da Agricultura. Brazil.	*Arch. Inst. biol. (Def. agric. anim.), S. Paulo.*
Askerî Veteriner Dergisi. Turkey.	*Ask. vet. Derg.*
Atti della Società Italiana delle Scienze Veterinarie. Italy.	*Atti Soc. ital. Sci. vet.*
Auburn Veterinarian. U.S.A.	*Auburn Vet.*
Australian Journal of Agricultural Research. Australia.	*Aust. J. agric. Res.*
Australian Journal of Applied Science. Australia.	*Aust. J. appl. Sci.*
Australian Journal of Biological Sciences. Australia.	*Aust. J. biol. Sci.*
Australian Journal of Dairy Technology. Australia.	*Aust. J. Dairy Tech.*
Australian Journal of Experimental Biology and Medical Science.	*Aust. J. exp. Biol. med. Sci.*
Australian Journal of Science. Australia.	*Aust. J. Sci.*
Australian Journal of Zoology. Australia.	*Aust. J. Zool.*
Australian Veterinary Journal. Australia.	*Aust. vet. J.*
Bacteriological Reviews. U.S.A.	*Bact. Rev.*
Berliner und Münchener Tierärztliche Wochenschrift. Germany.	*Berl. Münch. tierärztl. Wschr.*
Biochemical Journal. Great Britain.	*Biochem. J.*
Biological Abstracts. U.S.A.	*Biol. Abstr.*
Biological Reviews of the Cambridge Philosophical Society. Great Britain.	*Biol. Rev.*
Biológico. Brazil.	*Biológico.*
Biometrics. U.S.A.	*Biometrics.*
Blood. The Journal of Haematology. U.S.A.	*Blood.*
Boletim da Directoria da Producão Animal. Brazil.	*Bol. Diret. Prod. anim., Porto Alegre.*
Boletim de Indústria Animal. Brazil.	*Bol. Industr. anim.*
Boletim de Inseminação Artificial. Brazil.	*Bol. Insem. art.*
Boletim do Instituto Vital Brazil. Brazil.	*Bol. Inst. Vital Brazil.*
Boletim Pecúario. Portugal.	*Bol. pecuar.*
Boletim da Sociedade Brasiliera de Medicina Veterinaria. Brazil.	*Bol. Soc. bras. Med. vet.*
Boletim da Sociedade Paulista de Medicine Veterinaria. Brazil.	*Bol. Soc. paul. Med. vet.*
Boletin del Centro de Documentation Cientifica y Technica. Brazil.	*Bol. Cent. Doc., Mexico.*
Boletin de Información. Consejo General de Colegios Veterinarios de España. Spain.	*Bol. Cons. Col. vet. Esp.*
Boletin de Informacion. Supplemento Cientifico. Spain.	*Bol. Cons. Col. vet. Esp. Suppl. cient.*
Boletin de Instituto de Investigaciones Veterinarias. Venezuela.	*Bol. Inst. Invest. vet. Caracas.*
Boletin de la Oficina Sanitara Panamericana. U.S.A.	*Bol. Ofic. sanit. pan-amer.*
Boletín de Zootecnia. Spain.	*Bol. Zootec., Cordoba.*
Bolletino dell'Instituto Sieroterapico Milanese. Italy.	*Bol. Ist. sieroter. Milano.*
Bolletino della Società Italiana de Biologia Sperimentale. Italy.	*Boll. Soc. ital. Biol. sper.*
Bombay Veterinary College Magazine. India.	*Bombay Vet. Coll. Mag.*
British Abstracts of Medical Sciences. Great Britain.	*Brit. Abstr. med. Sci.*
British Journal of Animal Behaviour. Great Britain.	*Brit. J. Anim. Behav.*
British Journal of Experimental Pathology. Great Britain.	*Brit. J. exp. Path.*
British Journal of Haematology. Great Britain.	*Brit. J. Haematol.*
British Journal of Nutrition. Great Britain.	*Brit. J. Nutr.*
British Journal of Pharmacology and Chemotherapy. Great Britain.	*Brit. J. Pharmacol.*
British Medical Bulletin. Great Britain.	*Brit. med. Bull.*
British Medical Journal. Great Britain.	*Brit. med. J.*
British Veterinary Journal. Great Britain.	*Brit. vet. J.*
Bulletin de l'Académie Nationale de Médecine. France.	*Bull. Acad. nat. Méd.*
Bulletin de l'Académie Polonaise des Sciences. Classe Deuxième. Poland.	*Bull. Acad. polon. Sci. Cl. II.*
Bulletin de l'Académie Vétérinaire de France. France.	*Bull. Acad. vét. Fr.*
Bulletin Agricole du Congo Belge. Belgian Congo.	*Bull. agric. Congo belge.*
Bulletin Bibliographique. Bureau Permanent Interafricain de la Tsé-Tsé et de la Trypanosomiase. Belgian Congo.	*Bull. Bibliogr. Bur. interafr. Tsé-Tsé.*
Bulletin of the Department of Agriculture. State of California. U.S.A.	*Bull. Calif. Dep. Agric.*
Bulletin of Entomological Research. Great Britain.	*Bull. ent. Res.*

Title	*Abbreviation*
Bulletin of Epizootic Diseases of Africa. Kenya.	*Bull. epiz. Dis. Afr.*
Bulletin of the Faculty of Agriculture. Kagoshima University. Japan.	*Bull. Fac. Agric., Kagoshima Univ., Japan*
Bulletin of Hygiene. Great Britain.	*Bull. Hyg., Lond.*
Bulletin de l'Institut Pasteur. France.	*Bull. Inst. Pasteur.*
Bulletin Mensule de la Société Vétérinaire Pratique de France.	*Bull. Soc. vét. prat. Fr.*
Bulletin de Microscopie Appliquée. France.	*Bull. Micr. appl.*
Bulletin of the National Institute of Agricultural Sciences. Series G. Japan.	*Bull. Nat. Inst. agric. Sci., Japan.*
Bulletin of the Naniwa University. Series B. Japan.	*Bull. Naniwa Univ.*
Bulletin of the New York Academy of Medicine. U.S.A.	*Bull. N.Y. Acad. Med.*
Bulletin. Office International des Epizooties. France.	*Bull. Off. int. Epiz.*
Bulletin of the Scientific and Technical Documentation Centre. Part 2: Abstracts. Egypt.	*Bull. sci. tech. Docum. Centre, Cairo*
Bulletin Signalétique d'Entomologie Médicale et Vétérinaire. France.	*Bull. signal. Ent. méd. vét.*
Bulletin de la Société de Pathologie Exotique et de ses Filiales. France.	*Bull. Soc. Pat. exot.*
Bulletin de la Société de Sciences Vétérinaires de Lyon. France.	*Bull. Soc. Sci. vét. Lyon.*
Bulletin de la Société Vétérinaire Hellénique. Greece.	*Delt. Hellen. kten. Hetair.*
Bulletin du Syndicat National des Vétérinaires. France.	*Bull. Synd. nat. Vét.*
Bulletin Vétérinaire d'Algérie. Algeria.	*Bull. vét. Algér.*
Bulletin of the World Health Organization. Switzerland.	*Bull. World Hlth Org.*
Les Cahiers de Médecine Vétérinaire. France.	*Cah. Méd. vét.*
California Veterinarian. U.S.A.	*Calif. Vet.*
Canadian Journal of Agricultural Science. Canada.	*Canad. J. agric. Sci.*
Canadian Journal of Biochemstry and Physiology. Canada.	*Canad. J. Biochem. Physiol.*
Canadian Journal of Chemistry. Canada.	*Canad. J. Chem.*
Canadian Journal of Comparative Medicine and Veterinary Science. Canada.	*Canad. J. comp. Med.*
Canadian Journal of Microbiology. Canada	*Canad. J. Microbiol.*
Canadian Journal of Technology. Canada.	*Canad. J. Technol.*
Canadian Journal of Zoology. Canada.	*Canad. J. Zool.*
Cancer Research. U.S.A.	*Cancer Res.*
Ceres. Brazil. See Revista Ceres.	———
Ceylon Veterinary Journal. Ceylon.	*Ceylon vet. J.*
Ceylon Veterinary Services Reporter. Ceylon.	*Reporter, Ceylon.*
Chemical Reviews. U.S.A.	*Chem. Rev.*
Chinese Medical Journal. China.	*Chin. med. J.*
Chronicle of the World Health Organization. Switzerland.	*Chron. World Hlth Org.*
Ciencia Veterinaria. (Revista.) Spain.	*Cienc. vet.*
Clinica Veterinaria. Italy.	*Clin. vet., Milano.*
Colonial Plant and Animal Products. Great Britain.	*Colon. Pl. Anim. Prod.*
Comptes Rendus de l'Académie d'Agriculture. France.	*C. R. Acad. Agric. Fr.*
Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences. France.	*C. R. Acad. Sci., Paris.*
Comptes Rendus de l'Académie Bulgare des Sciences. Bulgaria.	*C. R. Acad. bulg. Sci.*
Comptes Rendus des Séances de la Société de Biologie et des ses Filiales. France.	*C. R. Soc. Biol., Paris.*
Conquest. The Journal of the Research Defence Society. Great Britain.	*Conquest.*
Cornell Veterinarian. U.S.A.	*Cornell Vet.*
Current Science. India.	*Curr. Sci.*
Dairy Science Abstracts. Great Britain.	*Dairy Sci. Abstr.*
Dansk Maanedsskrift for Dyrlaeger. Denmark.	*Dansk Maanedsskr. Dyrlaeg.*
Deutsche Tierärztliche Wochenschrift. Germany.	*Dtsch. tierärztl. Wschr.*
Documenta de Medicina Geographica et Tropica. Netherlands.	*Docum. Med. geogr. trop.*
Doklady Akademii Nauk SSSR. U.S.S.R.	*C. R. Acad. Sci. U.R.S.S.*
Doklady Vsesoyuznoy Akademii Sel'skokhozaistvennykh Nauk imeni V.I. Lenina. U.S.S.R.	*Proc. Lenin Acad. agric. Sci.*
East African Agricultural Journal. Kenya.	*E. Afr. agric. J.*
Empire Journal of Experimental Agriculture. Great Britain.	*Emp. J. exp. Agric.*
Encyclopédie Vétérinaire Périodique. France.	*Encycl. vét.*
Endeavour. Great Britain.	*Endeavour.*
Endocrinologia Japonica. Japan.	*Endocrinologia japon.*
Endocrinology. U.S.A.	*Endocrinology.*

Title	*Abbreviation*
Enzymologia. Acta Biocatalytica. Netherlands.	*Enzymologia.*
Ergebnisse der Hygiene, Bakteriologie, Immunitätsforschung und Experimentelle Therapie. Germany.	*Ergebn. Hyg. Bakt.*
Experimental Parasitology. U.S.A.	*Exp. Parasit.*
Farming in South Africa. Union of South Africa.	*Fmg S. Afr.*
Federal Veterinarian. U.S.A.	*Fed. Vet.*
Federation Proceedings. U.S.A.	*Fed. Proc.*
Fertility and Sterility. U.S.A.	*Fertil. & Steril.*
Finsk Veterinärtidskrift. *See* Suomen Eläinlääkärilehti.	
Food Science Abstracts. Great Britain.	*Food Sci. Abstr.*
Fortpflanzung, Zuchthygiene und Haustierbesamung. (Supplement to Dtsch. tierärztl. Wschr.) Germany.	*Fortpflanzung.*
Frankfurter Zeitschrift für Pathologie. Germany.	*Frankfurt Z. Path.*
Gaceta Veterinaria. Argentina.	*Gac. vet., B. Aires.*
Gazzetta Veterinaria. Italy.	*Gazz. Vet., Milano.*
Giornale di Batteriologia e Immunologia. Italy.	*G. Batt. Immun.*
Growth. U.S.A.	*Growth.*
Health. Journal of the Commonwealth Department of Health. Australia.	*Health, Canberra.*
Helminthological Abstracts. Great Britain.	*Helminth Abstr.*
Hemera Zoa. Indonesia.	*Hemera Zoa.*
Herbage Abstracts. Great Britain.	*Herb. Abstr.*
Heredity. Great Britain.	*Heredity.*
Hoppe-Seyler's Zeitschrift für Physiologische Chemie. Germany.	*Hoppe-Seyl. Z.*
Indian Farming. India.	*Indian Fmg.*
Indian Journal of Dairy Science. India.	*Indian J. Dairy Sci.*
Indian Journal of Malariology. India.	*Indian J. Malar.*
Indian Journal of Medical Research. India.	*Indian J. med. Res.*
Indian Journal of Veterinary Science and Animal Husbandry.	*Indian J. vet. Sci.*
Indian Veterinary Journal. India.	*Indian vet J.*
International Bulletin of Bacteriological Nomenclature and Taxonomy. U.S.A.	*Int. Bull. bact. Nom. Taxon.*
Internationale Zeitschrift für Vitaminforschung. Switzerland.	*Int. Z. Vitaminforsch.*
Iowa State College Veterinarian. U.S.A.	*Iowa St. Coll. Vet.*
Iowa Veterinarian. U.S.A.	*Iowa Vet.*
Irish Veterinary Journal. Republic of Ireland.	*Irish vet. J.*
Izvestija na Istituta po Eksperimentalna Veterinarna Meditzina. Bulgaria.	*Izv. Inst. eksp. vet.Med., Sofia*
Japanese Journal of Experimental Medicine. Japan.	*Jap J. exp. Med.*
Japanese Journal of Medical Science and Biology. Japan.	*Jap. J. med. Sci. Biol.*
Japanese Journal of Veterinary Research (*Formerly* Veterinary Research). Japan.	*Jap. J. vet. Res.*
Japanese Journal of Veterinary Science. Japan.	*Jap. J. vet. Sci.*
Journal of Agricultural Science. Great Britain.	*J. agric. Sci.*
Journal of the American Veterinary Medical Association. U.S.A.	*J. Amer. vet. med. Ass.*
Journal of Anatomy. Great Britain.	*J. Anat., Lond.*
Journal of Animal Ecology. Great Britain.	*J. Anim. Ecol.*
Journal of Animal Science. U.S.A.	*J. Anim. Sci.*
Journal of the Australian Institute of Agricultural Science.	*J. Aust. Inst. agric. Sci.*
Journal of Bacteriology. U.S.A.	*J. Bact.*
Journal of Biological Chemistry. U.S.A.	*J. biol. Chem.*
Journal of the Chemical Society. Great Britain.	*J. chem. Soc.*
Journal of Comparative Pathology and Therapeutics. Great Britain.	*J. comp. Path.*
Journal of Dairy Research. Great Britain.	*J. Dairy Res.*
Journal of Dairy Science. U.S.A.	*J. Dairy Sci.*
Journal of the Department of Agriculture. Republic of Ireland.	*J. Dep. Agric. Irish Free St.*
Journal of the Department of Agriculture of South Australia.	*J. Dep. Agric. S. Aust.*
Journal of the Department of Agriculture, Victoria. Australia.	*J. Dep. Agric. Vict.*
Journal of the Department of Agriculture, Western Australia.	*J. Dep. Agric. W. Aust.*
Journal of Economic Entomology. U.S.A	*J. econ. Ent.*
Journal of Endocrinology. Great Britain.	*J. Endocrin.*
Journal of the Entomological Society of Southern Africa. Union of South Africa.	*J ent. Soc. S. Afr.*
Journal of Experimental Biology. Great Britain.	*J. exp. Biol.*
Journal of Experimental Medicine. U.S.A.	*J. exp. Med.*
Journal of the Farmers' Club. Great Britain.	*J. Fmrs' Cl., Lond.*
Journal of General Microbiology. Great Britain.	*J. gen. Microbiol.*
Journal of General Physiology. U.S.A.	*J. gen. Physiol.*
Journal of Genetics. Great Britain.	*J. Genet.*
Journal of Helminthology. Great Britain.	*J. Helminth.*
Journal of Heredity. U.S.A.	*J. Hered.*
Journal of Hygiene. Great Britain.	*J. Hyg., Camb.*

Title	*Abbreviation*
Journal of Immunology. U.S.A.	*J. Immunol.*
Journal of Infectious Diseases. U.S.A.	*J. infect. Dis.*
Journal of the Japan Veterinary Medical Association. Japan.	*J. Jap. vet. med. Ass.*
Journal of Laboratory and Clinical Medicine. U.S.A.	*J. Lab. clin. Med.*
Journal of the Malayan Veterinary Medical Association. Malaya.	*J. Malay. vet. med. Ass.*
Journal of Medical Laboratory Technology. Great Britain.	*J. med. Lab. Tech.*
Journal of Milk and Food Technology. U.S.A.	*J. Milk Tech.*
Journal of Morphology. U.S.A.	*J. Morph.*
Journal of the National Cancer Institute. U.S.A.	*J. nat. Cancer Inst.*
Journal of Nutrition. U.S.A.	*J. Nutr.*
Journal of Parasitology. U.S.A.	*J. Parasit.*
Journal of Pathology and Bacteriology. Great Britain.	*J. Path. Bact.*
Journal of Pharmacology and Experimental Therapeutics. U.S.A.	*J. Pharmacol.*
Journal of Physiology. Great Britain.	*J. Physiol.*
Journal of Protozoology. U.S.A.	*J. Prot.*
Journal of the Royal Agricultural Society of England. Great Britain.	*J. R. agric. Soc.*
Journal of the Royal Army Veterinary Corps. Great Britain.	*J. R. Army vet. Cps.*
Journal of the Royal Institute of Public Health and Hygiene. Great Britain.	*J. R. Inst. publ. Hlth.*
Journal of the Royal Microscopical Society. Great Britain.	*J. R. micr. Soc.*
Journal and Proceedings of the Royal Society of New South Wales. Australia.	*J. roy. Soc. N.S.W.*
Journal of the Royal Society of Western Australia. Australia.	*J. roy. Soc. W. Aust*
Journal of the Science of Food and Agriculture. Great Britain.	*J. Sci. Fd Agric.*
Journal of the South African Veterinary Medical Association. Union of South Africa.	*J. S. Afr. vet. med. Ass.*
Journal of Tropical Medicine and Hygiene. Great Britain.	*J. trop. Med. (Hyg.)*
Journal of Wildlife Management. U.S.A.	*J. Wildlife Mgmt.*
Kitasato Archives of Experimental Medicine. Japan.	*Kitasato Arch.*
Kungliga Lantbrukshögskolans Annaler. Sweden.	*K. LandtbrHögsk. Ann.*
Laboratory Animals Bulletin. Great Britain.	*Lab. Anim. Bull.*
Laboratory Investigation. U.S.A.	*Lab. Invest.*
Laboratory Practice. Great Britain.	*Lab. Pract.*
Lancet. Great Britain.	*Lancet.*
Maataloustieteelinen Aikakauskirja. Finland.	*Maataloust. Aikakausk.*
Madras Veterinary College Annual. India.	*Madras vet. Coll. Annual.*
Magyar Állatorvosok Lapja. Hungary.	*Mag. állator. Lapja.*
Malayan Agricultural Journal. Malaya.	*Malay. agric. J.*
Manx Journal of Agriculture. Great Britain.	*Manx J. agric.*
Maroc Médical. Morocco.	*Maroc méd.*
Medical and Biological Illustration. Great Britain.	*Med. Biol. Illustr.*
Medical Journal of Australia. Australia.	*Med. J. Aust.*
Medicine. U.S.A.	*Medicine, Baltimore.*
Medlemsblad for den Danske Dyrlaegeforening. Denmark.	*Medlemsbl. danske Dyrlaegeforen.*
Medlemsblad för Sveriges Veterinärförbund. Sweden.	*Medlemsbl. Sver. VetFörb.*
Medycyna Weternaryjna. Poland.	*Méd. vét., Varsovie.*
Memorias do Instituto Butantan. Brazil.	*Mem. Inst. Butantan.*
Memorias do Instituto Oswaldo Cruz. Brazil.	*Mem. Inst. Osw. Cruz.*
Merck Report. U.S.A.	*Merck's Rep.*
Michigan State College Veterinarian. U.S.A.	*Mich. St. Coll. Vet.*
Mikrobiologiya. U.S.S.R.	*Microbiology, Moscow.*
Milchwissenschaft. Germany.	*Milchwissenschaft.*
Monatshefte für Tierheilkunde. Germany.	*Mh. Tierheilk.*
Monatshefte für Veterinärmedizin. Germany.	*Mh. VetMed.*
Monthly Bulletin of the Ministry of Health and the Public Health Laboratory Service. Great Britain.	*Mon. Bull. Minist. Hlth Lab. Serv.*
Mycologia. U.S.A.	*Mycologia*
Mycopathologia et Mycologia Applicata. Netherlands.	*Mycopathologia.*
National Agricultural Advisory Service Quarterly Review. Great Britain.	*N.A.A.S. quart Rev.*
National Research Council Research News. Canada.	*N.R.C. Res. News.*
Nature. Great Britain.	*Nature, Lond.*
New Zealand Agriculturist. New Zealand.	*N.Z. Agriculturist*
New Zealand Journal of Agriculture. New Zealand.	*N.Z. J. Agric.*
New Zealand Journal of Science and Technology. Section A. Agricultural Research. Section B. General. New Zealand.	*N.Z. J. Sci. Tech.*
New Zealand Medical Journal. New Zealand.	*N.Z. med. J.*

Title	*Abbreviation*
New Zealand Veterinary Journal. New Zealand.	*N.Z. vet. J.*
Nordisk Veterinärmedicin. Denmark.	*Nord. VetMed.*
North American Veterinarian. U.S.A.	*N. Amer. Vet.*
Notiziario dell'Istituto Vaccinogeno Antitubercolare. Italy.	*Notiz. Ist. vaccin. Antituberc.*
Nuova Veterinaria. Italy.	*Nuova Vet.*
Nutrition Abstracts and Reviews. Great Britain.	*Nutr. Abstr. Rev.*
Nutrition Reviews. U.S.A.	*Nutr. Rev.*
Onderstepoort Journal of Veterinary Research. Union of South Africa.	*Onderstepoort J. vet. Res.*
Pakistan Journal of Health. Pakistan.	*Pakist. J. Hlth.*
Pakistan Journal of Science. Pakistan.	*Pakist. J. Sci.*
Pakistan Journal of Scientific Research. Pakistan.	*Pakist. J. sci. Res.*
Papua & New Guinea Agricultural Gazette. Papua and New Guinea.	*Papua agric. Gaz.*
Parasitology. Great Britain.	*Parasitology.*
Pastoral Review and Graziers' Record. Australia.	*Pastoral Rev.*
Pecuária. Anais dos Servicos Veterinária e Indústria Animal. Angola, Portuguese West Africa.	*Pecuária.*
Pflüger's Archiv für die Gesamte Physiologie des Menschen und der Tiere. Germany.	*Pflüg. Arch. ges. Physiol.*
Pharmacological Reviews. U.S.A.	*Pharmacol. Rev.*
Philippine Journal of Animal Industry. Philippines.	*Philipp. J. Anim. Ind.*
Philippine Journal of Science. Philippines.	*Philipp. J. Sci.*
Philosophical Transactions of the Royal Society. Series B. Great Britain.	*Phil. Trans. Ser. B.*
Physiologia Comparata et Oecologia. Netherlands.	*Physiol. comp.*
Physiological Reviews. U.S.A.	*Physiol. Rev.*
Poultry Science. U.S.A.	*Poult. Sci.*
Praktische Tierarzt. Germany.	*Prakt. Tierarzt.*
Presse Médicale. France.	*Pr. méd.*
Proceedings of the American Association for Cancer Research. U.S.A.	*Proc. Amer. Ass. Cancer Res.*
Proceedings of the Entomological Society of British Columbia. Canada.	*Proc. ent. Soc. B.C.*
Proceedings of the Helminthological Society of Washington. U.S.A.	*Proc. helm. Soc. Wash.*
Proceedings. Koninklijke Nederlandse Akademie van Wetenschappen. Series C. Netherlands.	*Proc. Acad. Sci. Amst.*
Proceedings of the Nutrition Society. Great Britain.	*Proc. Nutr. Soc.*
Proceedings of the Royal Society. Series B. Great Britain.	*Proc. roy. Soc. Ser. B.*
Proceedings of the Royal Society of Medicine. Great Britain.	*Proc. R. Soc. Med.*
Proceedings of the Royal Society of Queensland. Australia.	*Proc. roy. Soc. Qd.*
Proceedings of the Royal Society of Victoria. Australia.	*Proc. Roy. Soc. Vict.*
Proceedings of the Society for Experimental Biology and Medicine.. U.S.A.	*Proc. Soc. exp. Biol., N.Y.*
Progresso Veterinario. Italy.	*Progr. vet., Torino.*
Pubblicazioni. Facoltà di Medicina Veterinaria, Università degli Studi di Perugia. Italy.	*Pubbl. Fac. Med. vet. Perugia.*
Public Health Reports. U.S.A.	*Publ. Hlth Rep., Wash.*
Quarterly Journal of Experimental Physiology. Great Britain.	*Quart. J. exp. Physiol.*
Quarterly Journal of Microscopical Science. Great Britain.	*Quart. J. micr. Sci.*
Queensland Agricultural Journal. Australia.	*Qd agric. J.*
Queensland Journal of Agricultural Science. Australia.	*Qd J. agric. Sci.*
Radiation Research. U.S.A.	*Radiation Res.*
Recueil de Médecine Vétérinaire. France.	*Rec. Méd. vét.*
Refuah Veterinarith. Israel.	*Refuah vet.*
Rendiconti Instituto Superiore di Sanità. Italy.	*R. C. Ist. sup. Sanit.*
Repositório de Trabalhos do Laboratório Central de Patologia Veterinária. Portugal.	*Repos. Lab. Pat. vet., Lisboa.*
Research. Great Britain.	*Research, Lond.*
Review of Applied Entomology. Series B. Great Britain.	*Rev. appl. Ent. Ser. B.*
Review of Medical and Veterinary Mycology. Great Britain.	*Rev. med. vet. Mycol.*
Revista Ceres. Brazil.	*Ceres, Minas Gerais.*
Revista de Ciências Veterinárias. Portugal.	*Rev. Cienc. vet., Lisboa.*
Revista de la Facultad de Agronomía y Veterinaria. Argentina.	*Rev. Fac. Agron, B. Aires.*
Revista de Faculdad de Medicina Veterinaria. Brazil.	*Rev. Fac. Med. vet., S. Paulo.*
Revista de la Facultad de Medicina Veterinaria. Peru.	*Rev. Fac. Med. vet., Lima.*
Revista de la Facultad de Medicina Veterinaria y de Zootecnia. Colombia.	*Rev. Fac. Med. vet., Bogota.*
Revista Grancolombiana de Zootecnia, Higiene y Medicina Veterinaria. Venezuela.	*Rev. grancolomb. Zootec.*
Revista del Instituto Bacteriologico Malbrán. Argentina.	*Rev. Inst. bact., B. Aires.*
Revista del Instituto Nacional de Biologia Animal. Peru.	*Rev. Inst. nac. Biol. anim., Lima.*

Title	*Abbreviation*
Revista Kuba de Medicina Tropical y Parastologia. Cuba.	*Rev. Kuba Med. trop.*
Revista de Medicina Veterinaria. Argentina.	*Rev. Med. vet., B. Aires.*
Revista de Medicina Veterinaria. Uruguay.	*Rev. Med. vet., Montevideo.*
Revista de Medicina Veterinaria y Parasitologia. Venezuela.	*Rev. Med. vet., Caracas.*
Revista Militar de Remonta e Veterinaria. Brazil.	*Rev. Milit. Rem. Vet., Rio de J.*
Revista del Patronato de Biologia Animal. (*Formerly* Trabajos del Instituto de Biologia Animal.) Spain.	*Rev. Patronato Biol. anim., Madrid*
Revista de la Sociedad de Medicina Veterinaria de Chile. Chile.	*Rev. Soc. Med. vet., Santiago.*
Revista de Veterinaria Militar. Argentina.	*Rev. Vet. Milit., B. Aires.*
Revue Canadienne de Biologie. Canada.	*Rev. canad. Biol.*
Revue du Corps Vétérinaire de l'Armée. France.	*Rev. Cps vét. Armée.*
Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux. France.	*Rev. Élev.*
Revue d'Immunologie et de Thérapie Antimicrobienne. France.	*Rev. Immunol.*
Revue de Médecine Vétérinaire. France.	*Rev. Méd. vét.*
Revue d'Oka. Canada.	*Rev. Oka.*
Revue de Pathologie Générale et Comparée. France.	*Rev. Path. comp.*
Rhodesia Agricultural Journal. Southern Rhodesia.	*Rhod. agric. J.*
Rindertuberkulose. (Supplement to Monatshefte für Tierheilkunde.) Germany.	*Rindertuberkulose.*
Rivista di Medicina Veterinaria e Zootecnia. Italy.	*Riv. Med. vet., Parma.*
Rivista di Parassitologia. Italy.	*Riv. Parassit.*
Roczniki Nauk Rolniczych. Series B & E. Poland.	*Roczn. Nauk. rol.*
Royal Society for the Promotion of Health Journal. (*Formerly* Royal Sanitary Institute Journal.) Great Britain.	*Roy. Soc. Hlth J.*
Rundschau für Fleischbeschauer und Trichinenschauer. Germany.	*Rdsch. Fleischbesch. Trichinensch.*
Sborník Československé Akademie Zemědělských Věd. Živočišná Výroba a Veterinární Medicina. Czechoslovakia.	*Sborn. čes. Akad. zemědělsk. Věd., Živoč. Vyr.*
Sborník Vysoké Školy Zemědělské a Lesnické Fakulty, Brno. Řada B. Spisy Fakulty Veterinární. Czechoslovakia.	*Sborn. vys. Šk. zemědělsk. les. Fac., Brno, Ser.B*
Schweizer Archiv für Tierheilkunde. Switzerland.	*Schweiz. Arch. Tierheilk.*
Schweizerische Zeitschrift für Allgemeine Pathologie und Bakteriologie. Switzerland.	*Schweiz. Z. allg. Path.*
Science. U.S.A.	*Science.*
Scientific Proceedings. Royal Dublin Society. Republic of Ireland.	*Sci. Proc. R. Dublin Soc.*
Scottish Agriculture. Great Britain.	*Scot. Agric.*
Sitzungsberichte. Österreichische Akademie der Wissenschaften. Abteilung 1. Austria.	*S.B. öst Akad. Wiss.*
South African Journal of Medical Sciences. Union of South Africa.	*S. Afr. J. med. Sci.*
South African Journal of Science. Union of South Africa.	*S. Afr. J. Sci.*
South African Medical Journal.	*S. Afr. med. J.*
Southwestern Veterinarian. U.S.A.	*Sthwest. Vet.*
Stain Technology. U.S.A.	*Stain Tech.*
Studies from the Rockefeller Institute for Medical Research. U.S.A.	*Stud. Rockefeller Inst. med. Res.*
Suomen Eläinlääkärilehti (Finsk Veterinärtidskrift). Finland.	*Finsk VetTidskr.*
Tabulae Biologicae. Netherlands.	*Tabul. biol., Hague.*
Tasmanian Journal of Agriculture. Australia.	*Tasm. J. Agric.*
Texas Veterinary Bulletin. U.S.A.	*Tex. vet. Bull.*
Tierärztliche Umschau. Germany.	*Tierärztl. Umsch.*
Tijdschrift voor Diergeneeskunde. Netherlands.	*Tijdschr. Diergeneesk.*
Tohoku Journal of Agricultural Research. Japan.	*Tohoku J. agric. Res.*
Transactions of the Highland and Agricultural Society of Scotland. Great Britain.	*Trans. Highl. agric. Soc. Scot.*
Transactions of the New York Academy of Sciences. U.S.A.	*Trans. N.Y. Acad. Sci.*
Transactions of the Royal Society of Canada. Section V. Biological Sciences. Canada.	*Trans. roy. Soc. Can.*
Transactions of the Royal Society of South Australia. Australia.	*Trans. roy. Soc. S. Aust.*
Transactions of the Royal Society of Tropical Medicine and Hygiene. Great Britain.	*Trans. R. Soc. trop. Med. Hyg.*
Translated Contents Lists of Russian Periodicals. Great Britain.	*Transl. Cont. Lists Russ. Period.*
Tropical Agriculture. Trinidad. British West Indies.	*Trop. Agriculture, Trin.*
Tropical Agriculturist. Ceylon.	*Trop. Agriculturist.*
Tropical Diseases Bulletin. Great Britain.	*Trop. Dis. Bull.*
Trudy Gelmintologicheskoĭ Laboratorii. U.S.S.R.	*Trud. gel'mint. Lab.*
Tubercle. Great Britain.	*Tubercle, Lond.*
Tuberculosis Index. Great Britain.	*Tuberc. Index.*
Türk Veteriner Hekimleri Dernigi Dergisi. Turkey.	*Türk vet. Hekim. dern. Derg.*

Title	*Abbreviation*
Veteran. Great Britain.	*Veteran, Glasgow.*
Veterinär-Medizinische Nachrichten. Germany.	*Vet.-med. Nachr.*
Veterinaria. Italy.	*Veterinaria, Milano.*
Veterinaria. Spain.	*Veterinaria, Madrid.*
Veterinaria. Yugoslavia.	*Veterinaria, Sarajevo.*
Veterinaria Italiana. Italy.	*Vet. ital.*
Veterinaria Tecnica Española. Spain.	*Vet. tec. esp.*
Veterinariya. U.S.S.R.	*Veterinariya, Moscow.*
Veterinarski Archiv. Yugoslavia.	*Vet. Arhiv.*
Veterinarski Glasnik. Yugoslavia.	*Vet. Glasn..*
Veterinársky Časopis. Czechoslovakia.	*Vet. Čas.*
Veterinářství. Czechoslovakia.	*Veterinářství, Brno.*
Veterinarstvo. Yugoslavia.	*Veterinarstvo, Zagreb.*
Veterinary Extension Quarterly. Univ. of Pennsylvania. U.S.A.	*Vet. Ext. Quart. Univ. Pa.*
Veterinary Medicine. U.S.A.	*Vet. Med.*
Veterinary Record. Great Britain.	*Vet. Rec.*
Veterinary Science News. U.S.A.	*Vet. Sci. News.*
Veteriner Fakültesi Dergisi. Turkey.	*Vet. Fak. Derg.*
Virchow's Archiv für Pathologische Anatomie und Physiologie und für Klinische Medizin. Germany.	*Virchows Arch.*
Virology. U.S.A.	*Virology*
Vlaams Diergeneeskundig Tijdschrift. Belgium.	*Vlaam. diergeneesk. Tijdschr.*
Wiener Tierärztliche Monatsschrift. Austria	*Wien. tierärztl. Mschr.*
Wissenschaftliche Zeitschrift der Humboldt-Universität zu Berlin.	*Wiss. Z. Humboldt-Univ.*
Wissenschaftliche Zeitschrift der Karl-Marx-Universität, Leipzig.	*Wiss. Z. Karl-Marx-Univ.*
World's Poultry Science Journal. U.S.A.	*World's Poult. Sci. J.*
Yale Journal of Biology and Medicine. U.S.A.	*Yale J. Biol. Med.*
Zeitschrift für Hygiene und Infektionskrankheiten. Germany.	*Z. Hyg. InfektKr.*
Zeitschrift für Krebsforschung. Germany.	*Z. Krebsforsch.*
Zeitschrift für Parasitenkunde. Germany.	*Z. Parasitenk.*
Zeitschrift für Tropenmedizin und Parasitologie. Germany.	*Z. Tropenmed. u. Parasit.*
Zentralblatt für Allgemeine Pathologie und Pathologische Anatomie. Germany.	*Zbl. allg. Path. path. Anat.*
Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. Erste Abteilung. Originale: Referate. Germany.	*Zbl. Bakt. I.*
Zentralblatt für Veterinärmedizin. Germany.	*Zbl. VetMed.*
Zhurnal Mikrobiologii Epidemiologii i Immunobiologii. U.S.S.R.	*J. Microbiol., Moscow.*
Zooiatria. Revista da Medicina Veterinaria y Produccion Pecuaria. Chile.	*Zooiatria.*
Zooprofilassi. Italy.	*Zooprofilassi.*
Zootechnia. Acta Societatis Internationalis Veterinariorum Zootechnicorum. Spain.	*Zootechnia, Madrid.*
Zootechnia e Veterinaria—La Fecondazione Artificiale. Italy.	*Zootec. e Vet.*

(b) ANNUAL REPORTS OF GOVERNMENT DEPARTMENTS AND RESEARCH INSTITUTES ETC.

Note: As these are all reports the word "Report" is omitted in this list.

INTERNATIONAL

Work of the F.A.O. Director General to F.A.O.
Bureau Permanent Interafricain de la Tsé-Tsé et de la Trypanosomiase.
Inter-American Institute of Agricultural Science, Department of Animal Industry, Costa Rica.

EUROPE

BRITISH COMMONWEALTH AND EMPIRE

Great Britain.
- Animal Health Services. Proceedings under the Diseases of Animals Act.
- Agricultural Research. Council.
- Colonial Development Corporation Reports and Accounts.
- Ministry of Health.
- Medical Research Council.
- Agricultural Improvement Council for England and Wales.
- The Animal Health Trust.
- National Farmers' Union.
- Royal Veterinary College and Hospital.
- London School of Hygiene and Tropical Medicine.
- Lister Institute of Preventive Medicine.
- Imperial Institute.
- Royal College of Surgeons of England Scientific Report.
- University of London. The College of the Pharmaceutical Society of Great Britain.
- British Empire Cancer Campaign.
- Universities Federation for Animal Welfare.
- National Institute for Research in Dairying, University of Reading.
- The Incorporated Liverpool School of Tropical Medicine.
- The Ciba Foundation.
- Council of the Royal College of Veterinary Surgeons.
- Imperial Cancer Research Fund.
- Northern Counties Animal Diseases Research Fund. Memorial to Alan. 8th Duke of Northumberland ("The Duke's Fund") Sheep and Lamb Diseases.
- City of Leeds. Annual Report of the Medical Officer of Health.
- City of Manchester Markets Committee.
- City and County of Newcastle-upon-Tyne, Veterinary Department.
- Animal Diseases Research Association. Moredun Institute, Edinburgh.
- Department of Health for Scotland (contains Report of the Veterinary Department).
- Royal College of Physicians of Edinburgh. Curator of Laboratory.
- Edinburgh and East of Scotland College of Agriculture.
- The West of Scotland Agricultural College, Glasgow.
- The Hannah Dairy Research Institute.

Northern Ireland.
- Ministry of Agriculture.
- Belfast, City Veterinarian.
- Agricultural Research Institute, Hillsborough.

Isle of Man.
- Board of Agriculture and Fisheries.

Malta.
- Department of Agriculture.

REPUBLIC OF IRELAND
- Minister of Agriculture and Veterinary College of Ireland.
- Diseases of Animals Acts, Quarterly Statistics.
- Medical Research Council.
- Dublin County Council. County Medical Officer of Health.

EUROPEAN CONTINENTAL COUNTRIES

Belgium.
- Institut pour la Recherche Scientifique en Afrique Centrale.

Denmark.
- Aarsberetning fra Veterinaer Direktoratet.
- Meddelelse fra Kanin Kontrol Stationen.
- Beretning om Sammenlignende Forsøg med Svin fra Statsanerkendte Avlscentre.
- Kongelige Veterinaer og Landbohøjskole Aarskrift.
- Københavns Bundhedskommissions Dyrlaeger.

Finland.
- Eläinlääkintölaitos Maatalousministeriön Eläinlääkintoosaston kertomus Vuosilta.

Italy.
- Istituto Zooprofilattico Sperimentale delle Venezie, Università degli Studi Padova.

Netherlands.
- Verslag van den Directeur van den Veeartsenijkundigen Dienst omtrent de Werkzaamheden van den Veeartsenijkundigen Dienst en den Gezondheidstoestand van den Veestapel.
- Verslag van den Veterinair Hoofdinspector van de Volksgezondheid belast met het toezicht op Naleving van de Vleeschkeuringswet.
- Verslag van de Werkzaamheden der Rijksseruminrichting.
- Verslagen en Mededeelingen van de Directie van den Landbouw in Nederland. (Verslag over den Landbouw in Nederland.)
- Jaarverslag van de Provinciale Gezondheidsdienst voor Dieren in Zuid Holland.
- Mededeelingen betreffende den Gezondheidsdienst voor Vee in Friesland.
- Jaarverslag van de Centrale Commissie van Toezicht op de Uitvoering van de Kunstmatige Inseminatie.
- Provinciale Gezondheidsdienst voor Dieren, Drenthe

Norway.
Veterinaervesenet. Norges Offisielle Statistikk.
Sweden.
Veterinärvård vid Armén. Sveriges Officiella Statistik. Hälso- och Sjukvård.
Hälso- och Sjukvård vid Försvaret av Försvarets Sjukvårds-förvaltning.

ASIA

British Commonwealth and Empire

Ceylon.
Director of Agriculture.
Cyprus.
Chief Veterinary Officer.
Livestock Officer.
Hong Kong.
Urban Council & Sanitary Department (contains Government Veterinary Officer's Report).
India.
Indian Council of Agricultural Research.
Indian Institute of Veterinary Research, Muktesar and Izatnagar.
Indian Dairy Department.
Department of Animal Husbandry and Veterinary Science, Bombay.
Civil Veterinary Department, East Punjab.
Animal Husbandry Department, Punjab.
Civil Veterinary Department, Bihar.
Animal Husbandry Department, Himachal Pradesh.
Administration of Coorg.
Civil Veterinary Department, Manipur.
Veterinary and Animal Husbandry Services, Madhya Bharat.
Veterinary and Animal Husbandry Services, Gwalior.
Civil Veterinary Department, Central Provinces and Berar.
Animal Husbandry Department, Madras.
Madras Veterinary College.
Animal Husbandry Department. United Provinces.
Animal Husbandry Department, Uttar Pradesh.
Malaya.
Veterinary Department.
Institute for Medical Research, Kuala Lumpur.
North Borneo.
Department of Agriculture.
Pakistan.
Assistant Veterinary Investigation Officer (Poultry) Province of Sind.
Civil Veterinary Department, Sind.
Animal Husbandry Department, Sind.
Baluchistan Agency.
Sarawak.
Department of Agriculture.

Other Countries

Indonesia.
Mendjadi Dokter Hewan Fakultet Kedokteran Hewan.
Japan.
Government Experimental Station for Animal Hygiene.
Statistics of Animal Hygiene, Tokyo.

AFRICA

British Commonwealth and Empire

Union of South Africa.
Director of Abattoir, Livestock Markets, Veterinary Services, Ice and Cold Storage Department, Johannesburg.
South African Institute for Medical Research.
South African Council for Scientific and Industrial Research.
Southern Rhodesia.
Director of Veterinary Services.
Director of Veterinary Research.
Director of Tsetse Fly Operations.
Division of Entomology.
Anglo-Egyptian Sudan.
Sudan Veterinary Service.
Basutoland.
Department of Agriculture.
Bechuanaland Protectorate.
Veterinary Department.
Gambia.
Department of Veterinary Services.
Department of Development and Agriculture.
Gold Coast.
Department of Animal Health.
Kenya.
East African Agricultural and Forestry Research Organization.
East African Tsetse and Trypanosomiasis Research and Reclamation Organization.
East African Veterinary Research Organisation.
Department of Veterinary Services.
Interafrican Bureau of Epizootic Diseases.
Mauritius.
Department of Agriculture.
Nigeria.
Veterinary Department, Northern Provinces.
Sleeping Sickness Service.
West African Institute for Trypanosomiasis Research.
Northern Rhodesia.
Veterinary Department.
Game and Tsetse-Control Department.
Nyasaland Protectorate.
Department of Veterinary Services & Animal Industry.
Seychelles.
Department of Agriculture.
Sierra Leone.
Veterinary Department.
Somaliland Protectorate.
Department of Agricultural and Veterinary Services.
Swaziland.
Veterinary Department.
Livestock and Agricultural Department.
Department of Native Land Settlement.
Tanganyika Territory.
Department of Veterinary Services.
Tsetse Research Department.
Uganda Protectorate.
Department of Veterinary Services & Animal Industry.
Virus Research Institute.
Zanzibar.
Department of Agriculture.

BELGIAN TERRITORIES

Institut pour la Recherche Scientifique en Afrique Centrale.

FRENCH UNION

Rapport du Conseil de l'Experimentation et des Recherches Agronomiques, Algérie.
L'Institut Pasteur du Maroc.
L'Institut Pasteur de Brazzaville, Congo.
Archive de l'Institut Pasteur Tananarive. (Extrait du Rapport Annuel.)

AMERICA

BRITISH COMMONWEALTH AND EMPIRE

Canada.
- Veterinary Director General, Production Service of Agriculture.
- Science Service, Dominion Department of Agriculture.
- National Research Council.
- Minister of Agriculture.
- Dominion Bureau of Statistics.
- Alberta. Department of Agriculture.
- British Columbia. Department of Agriculture. Agricultural Statistics. Provincial Game Commission Report.
- Crops, Livestock etc., Manitoba.
- Department of Agriculture, New Brunswick.
- Department of Agriculture, Province of Nova Scotia.
- Ontario Research Foundation.
- Ontario Veterinary College.
- Department of Agriculture of the Province of Prince Edward Island.
- École de Médecine Vétérinaire, Montréal, Quebec.
- Minister of Agriculture of the Province of Quebec.
- Department of Agriculture for Saskatchewan.

Bermuda.
- Department of Agriculture.

British Guiana.
- Livestock and Veterinary Division.
- Director of Agriculture.
- Crop and Livestock Census.

British Honduras.
- Department of Agriculture. Survey of the Livestock Industry by the Veterinary Officer.

Bahamas.
- Agricultural and Marine Products Board.

Barbados.
- Department of Science and Agriculture.

Falkland Islands.
- Department of Agriculture.

Jamaica.
- Department of Agriculture.

Leeward Islands.
- Antigua Agricultural Department [contains Veterinary Report].
- Departments of Agriculture and Veterinary Service.

Trinidad.
- Director of Agriculture.

Windward Islands.
- Agricultural Department, Dominica.
- Agricultural Department, Grenada.
- Department of Agriculture, St. Lucia.
- Agricultural Department, St. Vincent.

FRENCH UNION

L'Institut Pasteur de Guyane Française et du Territoire de l'Inini.

UNITED STATES OF AMERICA

Secretary of Agriculture. U.S. Department of Agriculture, Washington, D.C.
Bureau of Animal Industry, Department of Agriculture.
Livestock Conservation, Inc. [formerly National Livestock Loss Prevention Board].
Administrator of Agricultural Research.
Agricultural Experiment Stations.
Participation in the National Poultry Improvement Plan. Bureau of Animal Industry.
Surgeon General of the Public Health Service of the U.S.A.
Surgeon General, U.S. Army. (War Department.)
Gorgas Memorial Laboratory, Washington, D.C.
Bureau of Dairy Industry. Agricultural Research Administration.
Bureau of Entomology and Plant Quarantine.
Rockefeller Foundation. International Health Division.
Commonwealth Fund.
Division of Laboratories and Research
National Vitamin Foundation.
Agricultural Experiment Station of Alabama.
University of Arizona, College of Agriculture, Agricultural Experiment Station, Tucson, Arizona.
University of Arkansas College of Agriculture, Agricultural Experiment Station [contained in *Arkansas Farm Research*]
Livestock Department, Los Angeles County, California.
State of California, Department of Agriculture.
Agricultural Experiment Station, College of Agriculture, University of California.
Colorado Agricultural Experiment Station.
Storrs Agricultural Experiment Station, Connecticut.
Connecticut Agricultural Experiment Station, New Haven.
University of Delaware, Agricultural Experiment Station.
University of Florida, Agricultural Experiment Station.
Georgia Experimental Station of the University System of Georgia.
Georgia Coastal Plain Experiment Station.
Agricultural Experiment Station. University of Idaho.
University of Illinois. Agricultural Experiment Station.
Purdue University, Indiana. Agricultural Experiment Station, Lafayette.
Agricultural Research. Iowa State College of Agriculture.
Manhattan, Kansas. Agricultural Experiment Station.

Agricultural Experiment Station of the University of Kentucky.
Agricultural Experiment Station, Louisiana State University and Agricultural and Mechanical College.
North-East Louisiana Experiment Station. (Biennial.)
North Louisiana Experiment Station. (Biennial.)
Maine Agricultural Experiment Station.
Agricultural Experiment Station, University of Maryland.
Massachusetts Agricultural Experiment Station.
School of Veterinary Medicine, Michigan State College, East Lansing.
State Board of Agriculture of the State of Michigan.
Agricultural Experiment Station Michigan State College of Agriculture.
Regional Poultry Research Laboratory, Michigan.
Agricultural Experiment Station, University of Minnesota.
Mississippi Experiment Station.
Missouri Agricultural Experiment Station.
Livestock Sanitary Board, Montana.
Montana Agricultural Experiment Station.
State Entomologist of Montana.
Agricultural Experiment Station, Nebraska.
Agricultural Experiment Station, Nevada.
State of Nevada. State Department of Agriculture. (Biennial.)
New Hampshire Agricultural Experiment Station.
New Jersey Livestock Sanitary Association.
New Jersey State Agricultural Experiment Station.
Agricultural Experiment Station of the New Mexico College of Agriculture and Mechanic Arts.
New York State Agricultural College at Cornell University.
New York State Veterinary College at Cornell University.
New York Agricultural Experiment Station.
New York State Association of Milk Sanitarians.
North Carolina Agricultural Experiment Station.
Experiment Station Progress, North Dakota, Agricultural College.
Livestock Sanitary Board. North Dakota.
Ohio Agricultural Experiment Station, Wooster.
Ohio Agricultural Statistics.
Oklahoma Agriculture and Mechanic Arts College, Agricultural Experiment Station.
Oregon State College. Agricultural Experiment Station. (Biennial.)
Pennsylvanian Agricultural Experiment Station.
Rhode Island State College, Agricultural Experiment Station.
South Carolina Experiment Station. Clemson Agricultural College.
South Dakota Agricultural Experiment Station.
University of Tennessee Agricultural Experiment Station.
Texas Agricultural Experiment Station.
Utah Agricultural Station (Biennial).
Vermont Agricultural Experiment Station, University of Burlington, Vermont.
Virginia Agricultural Experiment Station.
State College of Washington, Agricultural Experiment Station.
Western Washington Experiment Station.
West Virginia Agricultural Experiment Station.
University of Wisconsin, Madison, Agricultural Experiment Station.
Wyoming Agricultural Experiment Station.
Puerto Rico Experiment Station.
Hawaii Agricultural Experiment Station.

AUSTRALASIA AND OCEANIA

British Commonwealth and Empire

Australia.
- Commonwealth Scientific and Industrial Research Organization.
- Live Stock Health Report. New South Wales.
- Northern Territory Administration. Animal Industry Division.
- Queensland. Division of Animal Industry.
- "Stock and Brands" Department, South Australia.
- The Institute of Medical and Veterinary Science, South Australia.
- Department of Agriculture, Western Australia.
- Animal Health Service, Department of Agriculture, Tasmania.

New Zealand.
- Director General of Agriculture.
- Department of Scientific and Industrial Research.
- Animal Research Division of the Department of Agriculture.
- Livestock Division, Department of Agriture.
- Dairy Board.
- Canterbury Agricultural College, University of New Zealand.
- Cawthron Institute.

Fiji.
- Legislative Council, Department of Agriculture.

PLAN OF ARRANGEMENT OF ABSTRACTS IN THE VETERINARY BULLETIN

The following is a guide to the order of abstracts in the *Veterinary Bulletin*. For diagnosis and diagnostic agents (tuberculin etc.) see under appropriate disease. The guide is necessarily limited to key words and frequently occurring items.

Abstracts are serially numbered and cross-referenced by number among the twenty-one different sections.

I. Diseases Caused by Bacteria and Fungi

AEROBES
- Cocci
  - Staphylococci
  - Streptococci
  - Mastitis (under appropriate causal agent)
  - Strangles
  - Micrococci (including Botryomycosis)
  - Vibrios
  - Spirilla
- Bacilli
  - Anthrax
- Mycobacteria
  - Tuberculosis
  - Johne's disease
- Corynebacteria
  - Caseous lymphadenitis
  - Ulcerative lymphangitis
- *Pfeifferella mallei* (Glanders)
- *Erysipelothrix rhusiopathiae* (Swine Erysipelas)
- *Erysipelothrix (Listeria) monocytogenes*
- *Pasteurella*
  - Haemorrhagic septicaemia
- *Pseudomonas*
- *Haemophilus*
- *Proteus*
- Colon-Typhoid Group
- Salmonella Group
  - Infection in mammals
    - Abortion in mares
    - Abortion in ewes
    - Porcine enteritis
  - Infection in birds
    - Pullorum disease (B.W.D.)
    - Fowl typhoid
  - Meat poisoning infections
- Brucella Group
  - *Br. abortus*
  - *Br. suis*
  - *Br. melitensis*
  - *Br. tularensis*

Spirochaetes
- *Leptospira*

ANAEROBES
- Clostridia
  - Blackleg
  - Malignant oedema
  - Clostridial infections of sheep
  - Tetanus
  - Botulism
- Vibrios
- *Fusiformis*

FUNGI
- *Mucor*
- *Coccidioides*
- *Candida*
- *Histoplasma*
  - *Histoplasma capsulatum*
  - *Histoplasma farciminosum* (Epizootic Lymphangitis)
- Ringworm
- *Aspergillus*
- *Actinomyces*
- *Actinobacillus*

PLEURO-PNEUMONIA GROUP
- Bovine Contagious Pleuro-Pneumonia
- Pleuro-Pneumonia-Like Organisms including Contagious Agalactia of Goats and Sheep

BACTERIAL FLORA OF ANIMAL TISSUES

METABOLISM AND NUTRITION OF MICRO-ORGANISMS

VARIOUS OTHER UNCLASSIFIED MICRO-ORGANISMS
- *Bartonella*
- *Eperythrozoon*
- *Grahamella*

II. Diseases Caused by Protozoan Parasites

- Amoebiasis
- Trypanosomiasis
- Leishmaniasis
- Trichomoniasis
- Blackhead of Turkeys *(Histomonas meleagridis)*
- Infectious Enteritis of Turkeys *(Hexamita)*
- Coccidiosis
- Malaria
- Piroplasmosis
- Theileriasis
- Anaplasmosis
- Toxoplasmosis
- Sarcosporidiosis

III. Diseases Caused by Viruses and Rickettsia.

Virus Infections not Limited to Single Species
- Foot and mouth disease
- Aujeszky's disease
- Rabies
- Pox diseases
- Influenza group
- Encephalitis group
  - Equine encephalomyelitis

Virus Diseases of Equines
- Respiratory infections
- Equine infectious anaemia
- African horsesickness
- Virus abortion

Virus Diseases of Cattle
- Rinderpest
- Bovine malignant catarrh
- Three-day fever
- Respiratory infections
- Lumpy skin disease

Virus Diseases of Sheep and Goats
- Bluetongue
- Contagious ecthyma
- Louping-Ill
- Virus abortion

Virus Diseases of Swine
- Swine fever
- Porcine encephalomyelitis (Teschen disease)
- Vesicular exanthema

Virus Diseases of Carnivora
- Of dogs
- Of cats
- Of foxes
- Of other Carnivora

Virus Diseases of Rodents

Virus Diseases of Birds
- Fowl plague
- Newcastle disease
- Respiratory infections
- Psittacosis

Virus Diseases of Man

Bacteriophage

Rickettsial Infections
- Heartwater
- Rickettsial conjunctivitis

IV. Immunity

- General Immunology
- Immunization and Immunizing Agents

Serology
Allergy and Anaphylaxis
Tissue Invasiveness (Permeability)
Various

V. **Parasites in Relation to Disease [General]**

VI. **Parasites in Relation to Disease [Arthropods]**
Lice
Bugs
Fleas
Dipterous Flies
Blowflies and fleshflies
Oestrids (warbleflies and botflies)
Biting muscids (*Stomoxys, Siphona, Glossina*)
Tabanids
Midges
Mosquitoes
Sheep ked
Pentastomes
Linguatula
Ticks
Mites

VII. **Parasites in Relation to Disease [Helminths]**
TREMATODES
CESTODES
Taenia
Cysticercosis
Echinococcosis
NEMATODES
Strongyloides
Trichurids
Trichinosis
Strongyles
Sclerostomes
Hookworms
Parasitic gastro-enteritis
Lungworms
Poultry gapeworm
Oxyurids
Ascarids
Spirurids
Filariae
Acanthocephala

VIII. **Spontaneous and Transmissible Neoplasms and Leucaemias [Including Fowl Paralysis]**
Spontaneous Tumours
Cancer Research
Virus Tumours of Rodents
Fowl Sarcoma
Fowl Paralysis

IX. **Nutritional and Metabolic Disorders**
General Nutrition
Carbohydrates, Fats, Proteins, Amino Acids, etc.
Minerals
Osteodystrophia and Rickets
Vitamins
Metabolic Disorders

X. **Diseases, General**
General and Collective
Special Animal Pathology—Unclassified Diseases of Particular Animals
Haematology
Radiation Injuries
Special Regional Pathology—Unclassified Diseases of Particular Body Systems
Histopathology

XI. **Poisons and Poisoning**
Inorganic
Organic and Alkaloid
Plant Poisons
Photosensitization
Poisoning by Ingestion of Arthropods
Venoms
Poisoning by Therapeutic Agents
Miscellaneous including War Gases

XII. **Pharmacology and General Therapeutics**
(For treatment of specific infections see under the appropriate disease.)
General Chemotherapy and Pharmacology
Antibiotics
Treatment of Unclassified Diseases
Vitamin Therapy
Hormone Therapy
Antidotes
Anaesthesia
Wound Treatment
Antiseptics and Disinfectants

XIII. **Physiology, Anatomy and Biochemistry**
General
Enzymes
Metabolism
Lactation
Normal Haematology and Blood Groups
Regional Physiology (Circulatory, Digestive, Respiratory, Nervous, Skeletal, Urino-Genital and Endocrine Systems)
Wound Healing
Anatomy
Biochemistry

XIV. **Public Health, Veterinary Services and Veterinary Education**
Milk Hygiene
Meat Hygiene
Food Poisoning
Rodent Control
Legislation and Veterinary Police Measures
Education

XV. **Livestock Hygiene**
Farm Buildings
Ventilation
Drainage
Disinfection
Water Supply
Pastures and Grazing
Conservation of Foodstuffs and Fodder

XVI. **Reproduction and Reproductive Disorders**
Artificial Insemination
Pregnancy Diagnosis
Sex Hormones
Sterility and Infertility
Hereditary Diseases
Lethal Factors and Teratology
Management of Breeding Stock

XVII. **Zootechny**
Acclimatization
Marking and Identification of Livestock
Dips and Dipping Tanks
Dehorning
Shearing
Castration
Hides and Skins
Humane Slaughter
Various

XVIII. **Technique and Apparatus**
Bacteriological
Parasitological
Microscopy and Optics
Histological
Laboratory, Various

XIX. **Miscellaneous**

XX. **Reports** (of State and Local Government Departments and of Institutes, Schools, and Other Corporate Bodies)

XXI. **Book Reviews**

COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 26] January, 1956 [No. 1

DISEASES CAUSED BY BACTERIA AND FUNGI

THAL, A. & EGNER, W. (1954). **Local effect of staphylococcal toxin. Studies on blood vessels with particular reference to phenomenon of dermonecrosis.**—*Arch. Path.* **57,** 392-404. **1**

The authors demonstrated that necrosis of skin following the i/d injection of staphylococcus toxin in rabbits was the result of infarction. The toxin produced prolonged segmental spasm of small mesenteric arteries and veins when infiltrated around them, and capillary permeability was altered in such a way that stagnation of blood flow resulted. In the skin, a combination of these two changes would probably lead to ischaemia with subsequent necrosis of the skin. The infiltration of specific antitoxin into the site of, and up to 2 hours after, the toxin injection inhibited the development of necrosis.—R.M.

AYNSLEY, L. H. & HUGHES, D. L. (1954). **Neomycin as a treatment for bovine mastitis.**—*Brit. vet. J.* **110,** 403-410. **2**

In vitro experiments showed that neomycin sulphate inhibits the growth of the six organisms commonly responsible for mastitis in cows at concentrations ranging from 0.04 to 5.0 μg./ml. in "difco" tryptose broth, but that concentrations of more than 40 μg./ml. are required to inhibit the majority of strains of these bacteria in skim milk medium. Milk levels of neomycin, assayed for 24 hours after infusion of 500 mg. into the udder were found to be occasionally below the inhibitory concentration last mentioned above.

Twenty cows with mastitis due to organisms other than *Str. agalactiae* were each given two infusions, each of 500 mg. neomycin sulphate, at 24 or 48-hour intervals. The treatment was considered to have failed in 16 of these cows, *i.e.*, in 25 out of 40 quarters treated.—G. P. MARSHALL.

HAMMER, D. (1954). Das Vorkommen von Pneumokokkentypen bei Kälbern mit Berücksichtigung der Epidemiologie und Klinik. [**The occurrence of *Streptococcus pneumoniae* in calves, with reference to epidemiology and symptoms.**]—*Zbl. Bakt. I.* (*Orig.*) **161,** 269-279. **3**

Over a period of 2 years 465 strains of streptococci were isolated from organs of sick calves which had died or had been slaughtered *in extremis*. Of these strains 364 were identified as *Str. pneumoniae*. Incidence was highest during winter; the age of highest susceptibility was during the 3rd week of life. Respiratory infection was diagnosed in 73%, umbilical in 18% and intestinal in 9% of the calves. Clin. features, penicillin treatment of protracted cases and vaccination experiments in dam and young were also described.

The organism was also isolated from 113 of 600 nasal, pharyngeal and tracheal smears from clin. healthy calves.—E.G.

DĄBROWSKI, T. & PAROSZKIEWICZ, M. (1955). Pneumokokoza cieląt. [**Pneumococcus infection in calves.**]—*Méd. vét., Varsovie.* **11,** 397-400. **4**

The authors discussed the literature. In their own studies they found no difference in morphology, biochemical reactions and cultural behaviour between human and calf strains, but the latter were more pathogenic for rabbits. Carrier cows could be detected by means of an agglutination test and a titre of 1 : 25 was considered positive. The calf strains produce a thermolabile haemolysin which can be obtained *in vitro* after 3 hours' incubation at 37°C. Experimentally inoculated mice responded well to penicillin which can also be used in the treatment of calves.

—M. GITTER.

I. PATTISON, I. H., MATTHEWS, P. R. J. & MAXTED, W. R. (1955). **Type classification by Lancefield's precipitin method of human and bovine group-B streptococci isolated in Britain.**—*J. Path. Bact.* **69,** 43-50. **5**

II. PATTISON, I. H., MATTHEWS, P. R. J. & HOWELL, D. G. (1955). **The type classification of group-B streptococci, with special reference to bovine strains apparently lacking in type polysaccharide.**—*Ibid.* 51-60. **6**

I. Eleven of the 16 Stableforth types corresponded with the 4 Lancefield types by precipitin tests, but possessed additional unstable protein antigens. Types 2a, 3a, 3b and 3c lacked type polysaccharide and could not be included in Lancefield's classification. Of 236 newly isolated strains examined 193 reacted with Lancefield's type sera. (All the Ia and Ib types were of human origin).

II. Exhaustive examination of the remaining 43 strains failed to demonstrate a type polysaccharide. Two non-specific protein antigens were found and used to separate the strains. The authors suggested a classification which adds these two groups to the 4 Lancefield types.—A. SEAMAN.

STAUB, A.-M., VIRAT, B. & LEVADITI, J. (1955). Pouvoir létal de certaines souches acapsulogènes de *B. anthracis*. **[Lethal properties of some non-capsulated strains of *Bacillus anthracis*.]**—*Ann. Inst. Pasteur.* **88,** 244-246. **7**

Non-capsulated strains of *B. anthracis* caused local swellings, more or less pronounced, but no deaths, when injected s/c or i/d into g. pigs. They caused death when injected into the ileo-caecal lymph node, the heart or the spleen of g. pigs and the mortality rate varied with the oedematogenous properties of the strain. The majority of organs and the circulating blood were free from *B. anthracis*.—T.E.G.R.

JAMIESON, W. M. & GREEN, D. M. (1955). **Anthrax and bone-meal fertiliser.** — *Lancet.* **268,** 560-561. **8**

Six cases of cutaneous *B. anthracis* infection (one with a fatal termination) were treated during 1952-54. Of these 5 had handled bone meal fertilizer and *B. anthracis* was isolated from two samples of meal [two other samples were negative but one of them came from the same commercial batch as the infected ones and was also presumed to be infected]. The 6th patient had not actually handled bone meal but had been on the docks when a cargo of bone meal was being unloaded. It was considered that the bone meal "was the source of infection in three cases and probably also in the other three".

—T.E.G.R.

TUCKERMAN, E. D. (1955). **Report of bovine tuberculosis infection in the buffalo herd of the Lehigh County Game Preserve.**—*Vet. Ext. Quart. Univ. Pa.* **No.** 139, pp. 108-110. **9**

The outbreak was discovered when a P.M. examination was carried out on a buffalo bull and he was found to be affected with a generalized condition; subsequently 13 reactors were found in the herd of 58. They were slaughtered and all were examined P.M.; 11 had macroscopic lesions. Further tuberculin testing is to be carried out.

—W. S. MARSHALL.

DÜRR, E. (1954). Untersuchungen über die bei tuberkulösen Schweinen vorkommenden Tuberkelbakterientypen. **[Types of tubercle bacilli occurring in tuberculous pigs.]** — *Inaug. Diss., Munich.* pp. 44. **10**

An account of isolation of *M. tuberculosis* from organs of 103 slaughtered pigs. Bovine type bacilli were isolated from 71, avian type from 12 pigs. From one pig both bovine and avian type bacilli were isolated.

—E.G.

PUSZTAI, S. (1955). Vizsgálatok a baromfigümökór helyi ée általános kórformáinak gyakoriságára. **[Localized and generalized TB. in fowls.]**—*Mag. állator. Lapja.* Fettick Ottó Spec. No. pp. 20-25. [English and Russian summaries. Abst. from English summary.] **11**

According to the meat inspection regulations in force in Hungary regarding TB. in poultry only the organs showing localized macroscopic TB. lesions are condemned; the carcass is passed for human consumption. P. demonstrated *M. tuberculosis* in organs which had no macroscopic lesions and he therefore considered that stricter control was necessary.

—T.E.G.R.

WAGENER, K. & REUSS, U. (1954). Bewirkt Pasteurisierung der Trinkmilch eine Virulenzabschwächung von Tukerkelbakterien? **[Does pasteurization of milk reduce the virulence of tubercle bacilli?]**—*Lebensmittel-tierarzt.* **5,** 113-114. **12**

During the course of routine examination of pasteurized milk, about 4,000 samples were tested on 10,000 g. pigs. Of 200 of the g. pigs which developed TB. after inoculation with

milk, 158 had generalized TB. and the remainder had only localized lesions. The proportion of generalized TB. to localized TB. was thus about the same as that obtained when g. pigs are inoculated with virulent tubercle bacilli. The authors concluded that tubercle bacilli which for one reason or another survived commercial pasteurization did not lose their virulence, as was suggested by Schönberg (1953).—R.M.

FRASCAROLI, G. & GENTILE, G. (1954). Note ematiche nella tubercolosi bovina e loro modificazioni in seguito a terapia iso-nicotinica. **[The effect of *iso*-nicotinic acid hydrazide treatment on the blood picture of cattle infected with TB.]**—*Zooprofilassi.* **9,** 355-358 & 361-373. **13**

Following the administration of *iso*-nicotinic acid hydrazide, the blood picture of 8 tuberculous cattle gradually returned to normal, with the exception of the eosinophile count. [See also *V.B.* **25** 274.]

—F. R. PAULSEN.

AVELLINI, G. & FIGORILLI, L. (1954). Comportamento della reazione allergica tubercolinica in vitelli sperimentalmente infettati con micobatteri tubercolari e trattati con idrazide dell'acido iso-nicotinico. **[Tuberculin test in calves following experimental infection and *iso*-nicotinic acid hydrazide treatment.]**—*Zooprofilassi.* **9,** 831-839. [English and French summaries.] **14**

In calves experimentally infected with *M. tuberculosis,* sensitivity to tuberculin remained after treatment with *iso*-nicotinic acid hydrazide. P.M. examination revealed that even recent lesions had not been sterilized by the drug. Frequent tuberculin testing caused desensitization.—F. R. PAULSEN.

SAENZ, A., Jr. (1955). Le vaccin BCG et le hamster. **[Inoculation of hamsters with B.C.G.]**—*Ann. Inst. Pasteur.* **89,** 83-100. **15**

B.C.G. inoculation of the hamster leads to a generalized reaction of the entire reticulo-endothelial system. Death is caused by intoxication due to the products of disintegration or metabolism of the bacilli, and secondarily by modification of the normal structure of the organs. B.C.G. never leads to generalized TB. in the hamster.

—W. R. BETT.

GERSTL, B., DAVIS, W. E., Jr., KIRSH, D., HOLLANDER, A. G., BARBIERI, M. & WEINSTEIN, S. B. (1955). **Detection of apparently absent circulating antibodies in tuberculous sera.**—*Amer. Rev. Tuberc.* **72,** 345-355. [French and Spanish summaries. English summary slightly modified.] **16**

Fractionation of serum proteins by the cold ethanol method unmasked antibody activity. Of 8 specimens of tuberculous serum which did not react in the Middlebrook-Dubos test, 4 could be demonstrated by fractionation to contain haemagglutinating antibodies. The serum of 7 patients which failed to react in the complement-fixation test yielded protein fractions manifesting antibody activity. The complement-fixing antibody was associated with the slow-moving globulins; the haemagglutinating antibodies could not be precisely located. Conclusive evidence for the presence of a substance suppressing antibody activity was not obtained. Fractionation of sera from 5 non-tuberculous patients, 2 of whom had positive tuberculin skin tests, did not yield fractions which reacted in the haemagglutination or complement-fixation test.

DESBORDES, J., FOURNIER, E. & ALIX, D. (1955). Action des substances colorantes sur les mycobactéries. IV. Colorants acides. Influence du pH. **[Action of stains on mycobacteria. IV. Acid stains: influence of pH.]**—*Ann. Inst. Pasteur.* **88,** 719-723. **17**

Acid stains are slightly or badly taken up by mycobacteria—virulent, attenuated (B.C.G. type), slightly virulent (*M. johnei* or saprophytes), whatever the pH. The colour obtained is always inferior in intensity to that obtained with basic stains.—W. R. BETT.

ZACHER, J. (1954). Der Unterschied zwischen Färbungs- und Vital-Säurefestigkeit der Myco-, speziell der Tuberkelbakterien und anderer Bakterien. **[Difference in acid-fastness between smear preparations and living tubercle bacilli and other bacteria.]**—*Arch. exp. VetMed.* **8,** 724-738. **18**

Z. suggested that, in order to clarify nomenclature, acid-fastness of bacteria to Ziehl-Neelsen stain and related procedures should be referred to as " stain acid-fastness " (Färbungssäurefestigkeit), while resistance to the action of acids *in vivo,* as during the obtaining of pure cultures of tubercle bacilli, should be referred to as "vital acid-fastness" (Vitalsäurefestigkeit). He discussed the causes and diagnostic significance of variability in stain acid-fastness and vital acid-fastness.—R.M.

APPLEBY, E. C. & HEAD, K. W. (1954). **A case of suspected Johne's disease in a llama** (*L. glama.*)—*J. comp. Path.* **64,** 52-53. **19**

A report on acute and fatal diarrhoea in a 14-month-old llama bred in captivity in the Edinburgh Zoo. P.M. examination revealed intestinal lesions similar to those occurring in Johne's disease. Acid-fast organisms morphologically resembling *Mycobacterium johnei* were present in stained sections of mesenteric lymph nodes and intestine. The organism was not isolated in culture.

—W. S. MARSHALL.

SPENCER, G. R. (1954). **The pathogenesis of experimental swine erysipelas.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.,* Seattle, 1954. pp. 132-138. **20**

E. rhusiopathiae infection was experimentally produced in pigs by scarification and by i/d and i/m inoculation. The skin appeared to be the predilection site in primary infection; acute necrotic dermatitis and acute focal inflammation of the renal medulla were the most noticeable lesions. Mild arthritis and endocarditis were also observed. Two pigs died 8-9 days after inoculation. They exhibited lesions "similar to acute septicaemic erysipelas". S. discussed the resistance of pigs to infection.—T.E.G.R.

JERSTAD, A. C. & JOHNS, E. E. (1954). **Performance of a bacterin in the control of erysipelas in turkeys.** — *Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.,* Seattle, 1954. pp. 333-337. **21**

Field trials with a killed *E. rhusiopathiae* vaccine administered in 2-ml. doses gave satisfactory control, the highest mortality due to swine erysipelas in vaccinated flocks being 2.03%.—D. LUKE.

HUQ, M. M. & QADIR, M. A. (1954). **Vaccination against haemorrhagic septicaemia.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. pp. 223-224. [Only abst. given. Abst. from abst.] **22**

The authors prepared a *Past. septica* vaccine from sero-fibrinous fluid collected from local oedematous lesions of haemorrhagic septicaemia, by adding to it 1% crystal violet and 1% formaldehyde. A dose of 5 ml. of this vaccine protected 6 cattle against subsequent challenge.—R.M.

CARTER, G. R. & MCSHERRY, B. J. (1955). **Further observations on shipping fever in Canada.**—*Canad. J. comp. Med.* **19,** 177-181. **23**

Thirty-three cattle affected with "shipping fever" in various stages were tested bacteriologically for *Pasteurella* and pleuropneumonia-like organisms (PPLO) by culture of whole blood and nasal exudates. *Past. haemolytica* was recovered from 27 nasal swabs and PPLO from 16, but no organisms were recovered from the blood samples. In no case was *Past. septica* isolated. A comparison of differential leucocyte values from 32 "shipping fever" cases and 20 normal animals revealed an eosinopenia and an increase in immature neutrophiles in the infected cattle. The constant recovery of *Pasteurella* from the respiratory tract and its absence from the blood suggests a pasteurellosis rather than a haemorrhagic septicaemia. The role of PPLO in "shipping fever" is not as yet known.—A. GREIG.

VAN DORSSEN, C. A. (1955). Enting van caviae tegen pseudotuberculosis met levende en dode entstof. [**Immunization of g. pigs against** *Past. pseudotuberculosis* **infection with living or killed vaccines.**]—*Tijdschr. Diergeneesk.* **80,** 718-722. [English, French and German summaries.] **24**

A live avirulent culture 32/IV as described by Thal [*V.B.* **23,** 27], injected i/p into g. pigs, conferred significantly better protection against challenge with virulent *Past. pseudotuberculosis* than a formolized vaccine prepared from a broth culture. A formolized vaccine prepared from a culture in chick embryos afforded no protection. Of the 25 vaccinated with the avirulent strain one died from the infection; no carriers were detected among the survivors.

STRASSMANN, R. (1954). Ein Beitrag zur Rolle der *Pseudomonas pyocyanea* als Erreger bakterieller Fortpflanzungsstörungen. [*Pseudomonas pyocyanea* **as a cause of reproductive disorders in cattle.**]—*Mh. VetMed.* **9,** 347-349. **25**

S. reported the isolation of *Ps. pyocyanea* in 142 of 536 semen samples and preputial washings, over a period of 3 years at the Institute of veterinary hygiene of the Humboldt University, Berlin. During the same period 95 samples from cows which had aborted, consisting of uterine swabs, placental tissue and aborted foetuses, were also examined and all were negative for *Ps. pyocyanea,* whereas preputial washings of 33 of 49 draught oxen contained the organism.

S. stated that the role of *Ps. pyocyanea* as agent of genital disease in cattle appeared to be overrated.—E.G.

LINDGREN, N. O. (1955). Streptomycinbehandling vid s.k. hönssnuva. [**Streptomycin treatment of infectious coryza in fowls.**] —*Medlemsbl. Sver. VetFörd.* **7**, 86, 88 & 90. **26**

Oral administration of daily doses of 50 mg. of streptomycin for 4 days has a curative effect in infectious coryza of fowls equivalent to that of 200-mg. injections. Penicillin is also beneficial. Streptomycin may be used prophylactically.—F. R. PAULSEN.

FEY, H. (1955). Coliprobleme bei Mensch und Tier. [**Problems of *Bact. coli* infection in animals and in human beings.**]—*Schweiz. Arch. Tierheilk.* **97**, 118-132. [English, French and Italian summaries.] **27**

A detailed review of the literature on *Bact. coli* infections in man and animals.
—W. G. SILLER.

SEELIGER, H. (1955). Die praktische Serodiagnostik der pathogenen Eingeweidebakterien. [**Serological diagnosis of pathogenic intestinal bacteria.**]—*Berl. Münch. tierärztl. Wschr.* **68**, 69-71. [English summary.] **28**

S. discussed a simplified laboratory routine for the identification of salmonella and their differentiation from *Bact. coli* and coliform organisms.—R.M.

SCHÖNBERG, F. (1954). **Remarks on the occurrence of the *Salmonella* in Germany and in Europe, and on the detection of salmonella infection in animals for slaughter, particularly animals slaughtered in cases of emergency or sickness.**—*WHO/FAO Expert Committee on Meat Hygiene.* (WHO/Zoon/35.) pp. 3. [Mimeographed.] **29**

A brief note on the epidemiology of *Salmonella* infection in food animals in Europe with special reference to Germany where the incidence is highest along the North Sea coast from Friesland to Schleswig-Holstein. S. stresses the need for the bacteriological examination of meat, especially in cases of emergency slaughter.—T.E.G.R.

YASIN, S. A., ISRAIL, M. & QUADIR, M. A. (1954). **Investigation into prevalence of avian salmonellosis in East Pakistan.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. pp. 243-244. [Only abst. given. Abst. from abst.] **30**

The Desi (indigenous) breed of fowls in East Pakistan were relatively resistant to artificial *S. pullorum* infection.—R.M.

RAM, T. & HUTT, F. B. (1955). **The relative importance of body temperature and lymphocytes in genetic resistance to *Salmonella pullorum* in the fowl.**—*Amer. J. vet. Res.* **16**, 437-449. **31**

The inter-relationship between body temp., lymphocyte count and resistance to *S. pullorum* infection in chicks 1—10 days old was investigated. It was observed that chicks whose average temp. during the first 5 days was above 104·6°F. were more resistant than those with lower temperatures. The lymphocyte count rose during the first 8 days after hatching; it was decreased by experimentally induced hyperthermia and it bore no relationship to resistance.—T.E.G.R.

HILL, C. H., GARREN, H. W., KELLY, J. W. & BARBER, C. W. (1955). **Effect of nutrition on the resistance of chicks to fowl typhoid.** —*Fed. Proc.* **14**, 437. [Only abst. given. Abst. slightly modified.] **32**

Studies have been undertaken to determine the influence of various nutritional factors on the resistance of chicks to *Salmonella gallinarum* infection. A maize-soya bean type of diet was used supplemented with methionine and all the known vitamins. Only 8% of the chicks fed the basal diet survived when *S. gallinarum* organisms were given orally. The survival rate was increased to 42% by supplementing the diet with all the known vitamins in 10-fold excess of the usual allowances plus 0·1% ascorbic acid. Ascorbic acid alone, the fat-soluble vitamins alone, or the water-soluble vitamins alone, had no effect in increasing the resistance of chicks to fowl typhoid. When vitamins A, D, E, K, B_{12}, pyridoxine or ascorbic acid were individually excluded from the vitamin supplement no increase in resistance was obtained.

FLOCH, H. (1955). Les différentes Salmonelles isolées jusqu'ici dans notre département Sud-Américain de la Guyane française. [**Species of *Salmonella* isolated in French Guiana.**]—*Rev. Path. comp.* **55**, 1108-1113. **33**

F. criticized a statement by Guilbride [*V.B.* **25**, 2971] that the only salmonellae reported as occurring in French Guiana were *S. gallinarum* in animals and *S. stanley, S. typhi-suis* and *S. sendai* in man. According to F., this list should also include *S. pullorum,*

S. muenchen and *S. typhi-murium* in animals and *S. paratyphi A, S. paratyphi B* and *S. bovis-morbificans* in man.—R.M.

ANON. (1955). **Salmonella in liquid egg, including frozen liquid egg. A report of the Public Health Laboratory Service.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **14,** 65-69. **34**

Salmonella were isolated from untreated or chilled liquid English hen egg, and duck egg, frozen English hen and duck egg, and also from imported hens' eggs from various sources.—W. S. MARSHALL.

I. HUQ, M. M., RAHMAN, M. H. & QADIR, M. A. (1954). **The occurrence of brucellosis in East Pakistan.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 224. [Only abst. given. Abst. from abst.] **35**

II. SHAH, S. U. (1954). **Survey of brucellosis in Peshawer.**—*Ibid.* p. 242. [Only abst. given. Abst. from abst.] **36**

I. Out of 105 pooled milk samples collected in the Comilla district, one was positive to the milk ring test. Attempts to isolate brucella from this sample gave negative results.

II. There were no positive reactions to the milk ring test in 40 pooled milk samples, representing 300 animals, mostly buffaloes, in the Peshawar district of Pakistan.—R.M.

GÖTZE, R. (1955). Vorschlag eines Sechs-Akte-Programmes zur Bekämpfung des Abortus (Bang). **[Suggestion for a programme for the control of bovine brucellosis in Germany.]**—*Dtsch. tierärztl. Wschr.* **62,** 41-49. **37**

A detailed description of a proposed eradication scheme for contagious abortion in cattle. This involves subjecting bulk milk to the ring test, followed by clinical and serological confirmation and the establishment of eradication areas with appropriate disposal of diseased or suspected animals—W. G. SILLER.

DIERNHOFER, K. (1955). Die Grundsätze der Bekämpfung des seuchenhaften Verkalbens in Österreich. **[Control of *Brucella* infection in cattle in Austria.]**—*Wien. tierärztl. Mschr.* **42,** 348-364. **38**

D. recommended a more strict interpretation of the agglutination test for brucellosis, and warned against the acceptance of foreign agglutination test certificates. He stated that Strain 19 *Br. abortus* vaccine should be used only in the most heavily infected herds, and that greater effort should be made to keep uninfected farms and areas free from infection.—R.M.

MCEWEN, A. D. & SAMUEL, J. MCA. (1955). *Brucella abortus*: **heat stable protective antigen revealed by adjuvant and present in a "rough" variant, Strain 45/20: immunisation experiments on guinea-pigs.**—*Vet. Rec.* **67,** 546-548. **39**

G. pigs in groups of 10—12 were vaccinated with heat-killed organisms emulsified in mineral oil, (using virulent and avirulent strains) and with saline vaccines of a (killed) virulent or a (living) avirulent strain respectively. A challenge infection was given at 8 weeks. The heat-killed adjuvant vaccines from virulent or avirulent strains were as effective as the living non-virulent vaccine. The best vaccine was prepared from a rough non-agglutinogenic strain (45/20) of low virulence.—A. SEAMAN.

ŠPILER, E. (1955). *Brucella suis* Huddleson kod svinja na jednoj ekonomiji u Ljubljani. **[Isolation of *Br. suis* from pigs in Ljubljana, Yugoslavia.]**—*Vet. Glasn.* **9,** 351-354. [In Croat. German summary.] **40**

An account of serological diagnosis of *Brucella* infection in 8 of 22 pigs and isolation of *Br. suis* from the testicles of 4 of 15 castrated boars from the same farm. Macroscopic testicular lesions were absent.—E.G.

FEILS, G. (1955). Die Bedeutung der Komplementbindung bei der Serodiagnose der Schafbrucellose. **[Diagnosis of *Brucella* infection in sheep by complement fixation.]**—*Tierärztl. Umsch.* **10,** 80-82. **41**

The agglutination and complement-fixation tests for *Br. melitensis* infection were compared in 2,300 ovine blood samples. The c.f. test was found to be particularly useful for confirming the diagnosis in cases yielding a doubtful reaction to the agglutination test.
—W. G. SILLER.

MOREIRA JACOB, M. (1955). Estudos sobre a brucelose caprina. (Com breve referência acerca da infecção nos ovinos). **[Studies on brucellosis in goats, with brief reference to the disease in sheep.]**—*Bol. pecuár.* **23,** No. 1, pp. 55-88. [English summary.] **42**

Under a scheme of brucellosis eradication, 776 reactor goats were slaughtered, and these, along with goat and sheep blood and milk samples, provided the material for this study. It proved very difficult to isolate

brucella organisms from the blood, but 4 strains were isolated from udder tissue and 33 strains from milk. With one exception, the strains isolated were *Br. melitensis,* the exception being an aerobic variant of *Br. abortus.* The rapid (slide) agglutination test yielded more positive reactions than the tube test, in the case of both sheep and goat sera.

—I. W. Jennings.

Renoux, G. (1955). Études sur la brucellose ovine et caprine. I. Choix d'une souche infectante de *Br. melitensis*: Calcul de la D.50 pour le cobaye et la souris. [**Brucellosis in sheep and goats. I. Choice of a strain of *Br. melitensis* and calculation of the L.D.50 for g. pigs and mice.**]—*Arch. Inst. Pasteur Tunis.* **32,** 51-64. **43**

Renoux, G., Alton, G. G. & Mahaffey, L. W. (1955). Études sur la brucellose ovine et caprine. II. Établissement de la D.50 d'une souche de *Br. melitensis* pour la chèvre et la brebis. [**Brucellosis in sheep and goats. II. Establishment of the L.D.50 of a strain of *Br. melitensis* for sheep and goats.**]—*Ibid.* 65-79. **44**

I. Three strains of *Br. melitensis* were examined with a view to choosing the best for vaccination purposes, and the authors describe how they determined the LD_{50} in g. pigs and mice, for each strain. A second series of tests carried out 11 months later confirmed the standards set up previously, and showed that the method of preserving the culture, by freeze drying, was satisfactory. It was also shown that 50 times more *Br. melitensis* was required to infect a g. pig by skin scarification than by subcutaneous inoculation.

II. The work was continued in sheep and goats, using the best *Br. melitensis* strain from the previous experiments. The animals were infected *via* the conjunctiva and the LD_{50} was determined in each case. The goat was found to be 20 times more sensitive to infection than the sheep.—I. W. Jennings.

Buss, W. (1955). Schafbrucellose—Ziegenbrucellose—Menschenbrucellose. [**Brucella infection in man from goats.**]—*Arch. Lebensmittelhyg.* **6,** 198-199. **45**

Two cases are reported of human brucellosis due to infection by goats, which in their turn had been infected with *Br. melitensis* by sheep. A method for cultural examination of milk is described in detail.—W. R. Bett.

Mathey, W. J., Jr. & Zander, D. V. (1955). **Spirochetes and cecal nodules in poultry.**—*J. Amer. vet. med. Ass.* **126,** 475-477. **46**

Spirochaetes similar to *Spironema cecigallorum* described by Harris (1930) were present in nodules in the caecum and occasionally in the ileum of fowls, turkeys and pheasants.—R.M.

Semmel, M. (1954). Über das Vorkommen von Leptospirose bei Katzen in München und Umgebung. [**Incidence of leptospirosis in cats in the Munich district.**]—*Inaug. Diss., Munich.* pp 51. **47**

Only one of 128 serum samples from healthy and diseased cats yielded a positive (1 : 640) titre to *L. canicola* and *L. sejroe.* Experimental s/c infection of 6 cats with *L. canicola, L. icterohaemorrhagiae, L. grippotyphosa, L. sejroe* and *L. pomona* failed to produce clin. symptoms, although there was a temporary increase in the titre. S. concluded that leptospirosis in cats is rare or may be overlooked as infection may be symptomless.

—E.G.

Quesada, A. & Altieri, M. (1955). Carbonchio sintomatico da *Cl. perfringens* tipo B. [**Blackleg in cattle caused by *Clostridium welchii* Type B.**]—*Vet. ital.* **6,** 516-525. [English, French and German summaries.] **48**

Eight cattle in a herd of 90 succumbed to blackleg. Three of these were examined in detail, and from these, *Cl. welchii* Type B was isolated in pure culture, from the bone marrow, spleen, liver and affected muscle.

—I. W. Jennings.

Gauthier, J. & Chevé, J. (1955). Étude de l'avortement vibrionien dans l'espèce bovine. Isolement des souches de *Vibrio-foetus.* [*Vibrio fetus* **abortion in cattle.**]—*Rec. Méd. vét.* **131,** 555-563. **49**

In the course of examination of 41 cases of bovine abortion, occurring mainly in the fifth or sixth month of pregnancy, the authors isolated *V. fetus* in 32 cases. The best place for obtaining cultures seemed to be the placental cotyledons.—I. W. Jennings.

Biberstein, E. L. (1955). **Antigenic aspects of *Vibrio fetus*.**—*Thesis, Cornell.* pp. 84. **50**

Fifty-six strains of *V. fetus* from bovine genital tracts and ovine or bovine foetuses were collected and classified according to their catalase activity. Rabbit sera were prepared against 51 of them. Cross-agglutination tests were performed between 56 antigens and 51 antisera, revealing the existence of 4 distinct serological types among the catalase-positive group and 2 among the catalase-negative

strains. Absorption tests demonstrated the multiplicity of haptogenic components presented in the vibrio strains. Complement-fixation tests that employed antigens consisting of formolized bacterial suspensions, heat extracts, acid and alkali extracts, residues of these extractions and sonic extracts all failed to reveal a common species antigen. Precipitation tests gave erratic results.

—H. L. GILMAN.

HOPPE, F. (1955). Et sammensat antibioticums anvendelse over for klinisk normale køers regelmaessige omløbning i et delvis med *V. fetus* inficeret milieu [**Antibiotic treatment of infertile cows in *V. fetus* infected herds.**]—*Nord. VetMed.* **7,** 141-150. [In Danish, English and German summaries.] **51**

In herds in which *V. fetus* infection was a problem, clinically healthy cows which repeatedly returned to service failed to respond to infusion into the genital tract of dihydrostreptomycin in vegetable oil.

—F. R. PAULSEN.

JANOWSKI, H. (1955). Badania nad zakaźnym zapaleniem żołądka i jelit u świń w Polsce. [**Role of *Vibrio suis* in infectious gastro-enteritis of swine.**]—*Roczn. Nauk rol.* Ser. E. **67,** 5-23. [In Polish. English and Russian summaries.] **52**

An account of 4 outbreaks of dysentery with a high mortality rate in fattening pigs. On two occasions an organism identified as *Vibrio coli (V. suis)* was recovered from the submucosa of the large intestine. The primary culture was made on 10% sheep blood agar and incubated anaerobically. Attempts at subcultivation were unsuccessful. The condition was reproduced experimentally in 2 out of 6 pigs by oral administration of parts of large intestine and faeces of pigs exhibiting typical symptoms of dysentery.

Affected animals responded to the oral administration of streptomycin (one dose of 1 g. daily or 2 daily doses of 0·5 g.) or sulphaguanidine (3 times daily, 6—10 g. per pig).—M. GITTER.

CSONTOS, J. & PESTI, L. (1955). Adatok a sertés gyomorbélgyulladásának oktanához. [**Aetiology of porcine gastro-enteritis.**]—*Mag. allator. Lapja.* **10,** 184-187. [English and Russian summaries. Abst. from English summary.] **53**

An account of gastro-enteritis of pigs in Hungary. A vibrio [not specified] was isolated from the intestinal wall, faeces, brain and other organs of infected animals. The disease was transmitted experimentally to pigs by administration, *per os,* of infected tissue, faeces or pure vibrio culture, and to laboratory animals by administration [route not stated] of brain material from infected pigs. The organism was demonstrated in the organs, brain and blood of the experimental animals.

—T.E.G.R.

CHWOJNOWSKI, A. & WĘDRYCHOWICZ, S. (1955). Zanokcica u bydła. [**"Foul in the foot" in cattle.**] — *Méd. vét., Varsovie.* **11,** 411-414. **54**

Although the disease is caused by mixed bacterial infection, with *Fusiformis necrophorus* the most important organism, overgrown hooves, dirty wet stands and mechanical injuries are predisposing factors. Three stages of the disease are recognized: (1) cutaneous and subcutaneous, where the prognosis after evacuation of pus is generally very good; (2) tendinous, involving usually the flexor tendons and (3) osteo-arthritic, when the digital bones and joints are affected.

Treatment is local and general. The former varies from simple cleaning and trimming of the hoof to amputation of the digit. The authors could not obtain sulphadimidine, sulphapyridine or sulphamerazine and in their experience i/v administration of sulphathiazole or combined treatment with streptomycin i/m and sulphathiazole i/v was not efficacious. They recommended preventive measures involving periodical trimming of hooves, provision of clean stands and bedding and treatment of even the smallest hoof injury.

—M. GITTER.

LITTLEJOHN, A. I. (1955). **The use of formalin in the control of foot-rot in sheep.**—*Vet. Rec.* **67,** 599-602. **55**

Treatment consisted in removal of diseased horn followed by immersion of the foot in 10% formol for 60-90 sec.: the sheep was then stood on clean concrete for an hour. In a flock of 269 sheep, 114 were affected. Following initial treatment, 77% were clinically cured. The remainder cleared up after a maximum of two further treatments. No segregation was practised and the animals were removed to clean pasture only after completion of initial flock treatment which was spread over 5 days. The author notes the economy of this treatment in comparison to that with chloramphenicol.—C. C. BANNATYNE.

BRODHAGE, H. & FEY, H. (1955). Beobachtungen bei der Hämagglutinationsreaktion auf Bang und Tuberkulose mit menschlichen und tierischen Sera. [**The haemagglutination test in *Br. abortus* infection and TB. with human and animal sera.**—*Z. Hyg. InfektKr.* **141,** 76-81. **56**

The authors examined sera from 14 human beings, 16 cattle and 3 rabbits infected with either TB. or *Br. abortus,* using haemagglutination tests for each disease. In contrast to human and rabbit sera, the sera of TB.-positive brucella-negative cattle gave positive haemagglutination with r.b.c. sensitized with phenolized *Br. abortus* suspension. The reaction of sera of rabbits immunized against *Br. abortus* to the haemagglutination test for TB. depended on the type of tuberculin used in preparing the antigen, being positive with some and negative with other antigens.—R.M.

GÖTZE, R. (1955). Zur antibiotischen Behandlung der mikrobiell bedingten Sterilität beim weiblichen Rind. [**Antibiotic treatment of sterility of bacterial origin in the cow.**]—*Fortpflanzung.* **5,** 97-103. [English summary.] **57**

Four categories of infections causing disorders in conception or placentation in cows are described, and the effects of antibiotic treatment outlined. Planned antibiotic therapy after microbiological examination is of value. Iodine therapy is still preferable in non-infectious cases.—F. R. PAULSEN.

EMMONS, C. W., ROWLEY, D. A., OLSON, B. J., MATTERN, C. F. T., BELL, J. A., POWELL, E. & MARCEY, E. A. (1955). **Histoplasmosis. Proved occurrence of inapparent infection in dogs, cats and other animals.**—*Amer. J. Hyg.* **61,** 40-44. **58**

In 8 years, 4,664 animals were trapped, shot or otherwise obtained in Loudoun County, Virginia, and their organs examined for evidence of histoplasmosis. *Histoplasma capsulatum* was isolated from 145 of 397 dogs, 81 of 449 cats, 75 of 2,194 rats, 3 of 95 opossums, 2 of 18 skunks, and one each of 988 house mice, of 30 foxes and of 37 woodchucks, which with few exceptions, had no direct symptoms of the disease. Isolations were also made from soil on 5 farms during all seasons of the year. In cats and dogs proof of infection was obtained by isolations from the hilar lymph nodes, even in cases which had given negative reactions to the intradermal and serological tests.—P. K. C. AUSTWICK.

SALVIN, S. B. (1955). **Further studies on immunization of mice against *Histoplasma capsulatum*.**—*Amer. J. Hyg.* **61,** 72-81. **59**

The use of formol-killed acetone-dried yeast phase cells of *H. capsulatum* to immunize mice by i/p injection against subsequent challenge by this fungus revealed that a lower death rate and a lower quantitative recovery of the fungus from the spleen, kidneys, liver and brain resulted. No difference in resistance to lethal or sub-lethal challenge was found in mice immunized in one, two, or three doses.
—P. K. C. AUSTWICK.

REISS, F., CAROLINE, L. & LEONARD, L. (1954). **Experimental *Microsporum lanosum* infection in dogs, cats and rabbits. I. Observations on the course of the primary infection.**—*Trans. N.Y. Acad. Sci. Ser.* 2. **16,** 277-280. **60**

Inoculations with pure cultures of *Microsporum lanosum* (*M. canis*) were carried out on 9-week-old and new-born rabbits, and on dogs, puppies, cats and kittens, to ascertain the course of infection and the suitability of these animals for the *in vivo* evaluation of antimycotics. New-born rabbits gave the most uniform results with only slight variation in the duration of fluorescence and an almost constant period of persistence of clinical symptoms and recovery of the fungus (about 100 days). Alopecia and scaling were not constant clinical features and appeared to be related to cyclical changes in the hair growth.
—P. K. C. AUSTWICK.

RISTIC, M. & SANDERS, D. A. (1955). **Canine microsporosis.**—*Vet. Med.* **50,** 225-228. **61**

Microsporum canis was isolated from ringworm of the feet in 3 dogs and was transmitted experimentally to rabbits, a g. pig and a hamster. One dog treated topically with zinc ethylene bisdithiocarbamate failed to respond and died in three weeks but P.M. examination revealed no gross internal lesions. Another was treated with several different fungicides, and the remaining dog by the method described by Strickler, using heat treatment to assist in the penetration of the iodine compound employed. Both these animals showed improvement after some weeks, and the latter was completely cured.
—P. K. C. AUSTWICK.

La Touche, C. J. (1955). **Onychomycosis in cats infected by *Microsporum canis* Bodin.**—*Vet. Rec.* **67,** 578-579. **62**

Examination of more than 25 cats and kittens naturally infected with *Microsporum canis* showed that a total of 15 claws on 4 cats were fluorescent under Wood's light. Hyphæ were demonstrated growing parallel to the long axis of the affected claws and *M. canis* was isolated in each case. It is considered that examination under Wood's light for *Microsporum* infection should include the claws as well as the fur and whiskers.

—P. K. C. Austwick.

Ainsworth, G. C. & Georg, L. K. (1954). **Nomenclature of the faviform Trichophytons.**—*Mycologia.* **46,** 9-11. [Abst. from abst. in *Rev. med. vet. Mycol.* **2,** 175. (**1954**).] **63**

Recent studies on the nutritional requirements of the *Trichophyton* species of the 'faviform' group have shown that *T. album, T. discoides* and *T. ochraceum* are all varieties of the same species. The name *T. faviforme* is shown to be invalid and *T. verrucosum* Bodin is considered to be the correct name.

—P. K. C. Austwick.

Barlow, A. J. E. & Chattaway, F. W. (1955). **The attack of chemically modified keratin by certain dermatophytes.**—*J. invest. Derm.* **24,** 65-74. [Authors' summary modified.] **64**

The authors discussed the ability of the dermatophytes to grow in keratin, emphasizing the differences between such growth *in vivo* and *in vitro.* While growing on keratin, modified by breaking the naturally occurring cross-linkages between keratin molecules, representative strains of *M. canis, M. audouini, T. rubrum* and *E. floccosum* showed much more marked and rapid attack as compared with controls on normal hair. Correspondingly, attack was significantly less when these fungi were grown on keratin treated under specified conditions in order to increase the cross-linkages on the side chains. The authors discussed these findings in relation to the ætiology of fungous infections and to some aspects of treatment.

Nunes Petisca, J. L. (1954). Valor dos focos de organização perivascular no diagnóstico anátomo-histopatológico da peripneumonia exsudativa dos bovinos. **[Value of foci of perivascular infiltration in the diagnosis of bovine contagious pleuro-pneumonia.]**—*Bol. pecuar.* **22,** No. 2, pp. 3-17. **65**

The authors consider the presence of foci of perivascular infiltration to be specific for bovine contagious pleuro-pneumonia. These foci appear in the peribronchial sheaths, around the blood-vessels and in the subpleural space, but are more characteristic in the interlobular walls. In the structure of the foci the most important differential character is the presence of a peripheral zone of nuclear detritus.—I. W. Jennings.

I. Clapp, K. H. (1955). **A complement fixation test for the diagnosis of ovine brucellosis with special reference to epididymitis.**—*Aust. vet. J.* **31,** 27-28. **66**

II. Clapp, K. H., Symons, L. E. A. & Doolette, J. B. (1955). **The application of a complement fixation test to the diagnosis of ovine brucellosis.**—*Ibid.* 29-30. **67**

I. C. described in detail a c.f. test for the diagnosis in sheep of infection by the *Brucella*-like organism causing epididymitis of rams in Australia and New Zealand. In devising the test a strongly anticomplementary factor in the antigen had to be overcome.

II. A report on the use of the complement-fixation test devised by Clapp [I *supra*]. The indications were that this test could be used to reveal infection in rams with no clinical evidence of epididymitis and from the semen of which the organism could not be isolated. There is also a brief note upon the use of the test in ewe flocks.

—L. E. A. Symons.

Turner, A. W. (1954). **Bacterial oxidation of arsenite. I. Description of bacteria isolated from arsenical cattle-dipping fluids.**—*Aust. J. biol. Sci.* **7,** 452-478. [Author's summary modified.] **68**

From arsenical cattle-dipping fluids from Queensland, in which spontaneous oxidation of arsenite to arsenate had occurred, 15 strains of bacteria were isolated which are able to bring about oxidation of arsenite in culture media. Their characteristics, their taxonomy, and some factors which influence their arsenite - oxidizing activity were described.

See also absts. **139** (histoplasmosis and R. typhi infecton); **300** ("non-specific" venereal infections); **315** (report, Ministry of Health); **316** (report, Australia); **317** (report, Bermuda); **321** (report, Netherlands).

DISEASES CAUSED BY PROTOZOAN PARASITES

JAMIL, M., KHAN, A. A. & HASHMI, Z. A. (1954). **Chemotherapy in trypanosomiasis in equines.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. pp. 241-242. [Only abst. given. Abst. from abst.] **69**

An account of the successful treatment of natural and experimental *T. evansi* infection in horses and donkeys with 3 mg./kg. body wt. quinapyramine sulphate or 0·03 ml./kg. body weight prophylactic injection of quinapyramine.—R.M.

BEATTIE, H. E. (1955). **A bovine "trichomonad cyst".**—*Aust. vet. J.* **31,** 146-147. **70**

A Gartnerian retention cyst in the vagina of a cow was found to contain viable trichomonads after 11 weeks during which examination of the vaginal exudate had yielded negative results, following a period of 7 weeks when the findings had been positive. B. emphasized the importance in a herd control programme of such a residuum of infection.

—D. C. BLOOD.

JAŚKOWSKI, L. (1954). Badania nad zaraza rzęsistkową. I. Występowanie choroby w Polsce. II. Przebieg enzootiiw terenie. III. Doświadczenia nad zwalczaniem enzootii. **[Research on trichomoniasis. I. Incidence of the disease in Poland. II. Field studies of the course of infection. III. Experiments on the control of the disease.]**—*Roczn. Nauk rol. Ser. E.* **66,** 151-162; 163-185 & 187-210. [English and Russian summaries.] **71**

I. Bovine trichomoniasis has been diagnosed in several districts of Poland and is probably widespread. Combined microscopic and cultural examinations of suspected semen yielded better results than either method alone. In order to reduce bacterial contamination of samples, infusions of the preputial cavity with a mixture of 5 g. iodoform in 95 ml. of liquid paraffin or glycerol were carried out once daily on 3 consecutive days and 3-6 days before sampling.

II. An account of a 2½-year study of the course of bovine trichomoniasis in a village consisting of small holdings. The animals were examined every 6 months but no attempt was made to control the infection, which spread faster amongst bulls. Of the 11 bulls 10 became infected. During that time 73% of the cows came in contact with the infected bulls and infertility in the cows increased during that period from 21.1% in 1949 up to 40.7% in 1951. J. confirmed the findings of Bartlett regarding the periodic disappearance of *Trichomonas* from the vagina of infected cows between the oestrous periods and their reappearance at oestrus. In cows with regular oestrous cycles trichomonads could not be detected after the 4th oestrus following infection (87 days). In cows with irregular oestrous cycles trichomonads were still found 196 days after infection. In cows which showed signs of anoestrus after the infective service trichomonads were still recovered 417 days after infection. A comparison of pathological changes of the genital organs in 597 infertile trichomonad-infected cows with those in 224 infertile but uninfected ones revealed no difference between the two groups in percentage incidence of granular vaginitis, but the infected group had a higher incidence of endometritis, pyometra and abortion.

J. proved experimentally that the low viscosity of the discharges from the genital organs of infected cows is due to certain mucolytic substances produced by *Trichomonas.*

III. Two methods of control were used, the infected bulls were eliminated and the following breeding programme introduced:—(a) all cows and heifers were artificially inseminated; (b) all cows and heifers were divided into two groups, (i) *Trichomonas*-infected animals and (ii) uninfected ones; those in group (i) being artificially inseminated, and those in group (ii) served by a clean bull.

In cases where artificial insemination was adopted as a control measure the percentage of sterility dropped from 40 to 8%. In villages where control method (b) was used in 3 out of 4 cases the eradication of trichomoniasis was successful and the incidence of sterility dropped from 50% to about 10%. An experiment on treatment with a 0.2% iodine solution and a 5.0% iodoform suspension introduced into the uterus gave the following results:

In cases of catarrhal endometritis 84% of the treated animals conceived within 2.3 months after diagnosis (1.7 months after treatment); in the control group 58% conceived within 3.5 months after diagnosis.

In cases of purulent endometritis 52% of the treated animals conceived as compared with 13% in the untreated group.

In cases of catarrhal endometritis associated with functional disorders the con-

ception rate in the treated group was 55.8% as compared with 54.8% in the untreated group.
—M. GITTER.

BLACKSHAW, A. W. & BEATTIE, H. E. R. (1955). **The preservation of *Trichomonas foetus* at –79°C.**—*Aust. vet. J.* **31**, 214-216. [Authors' summary modified.] **72**

Tr. foetus was revived and cultured after freezing to –79°C. in media containing glycerol. Glycerol concentrations of from 5-15% permitted revival after freezing, but levels exceeding 10% were toxic to *Tr. foetus*.

EDGAR, S. A. (1955). **Sporulation of oocysts at specific temperatures and notes on the prepatent period of several species of avian coccidia.**—*J. Parasit.* **41**, 214-216. **73**

E. states that the infectivity of oocysts of most avian coccidia has not been determined at specific periods nor at specific temperatures. He gives figures (for 8 species) which include:— the earliest hour at which oocysts reach the infective stage, their mean size, and the length of time in hours of the prepatent periods. He concludes that when conditions are optimum, the life cycles of several species are one day less than previously reported.
—D. POYNTER.

SERGENT, E. & PONCET, A. (1955). Étude expérimentale du paludisme des rongeurs à *Plasmodium berghei*. I. Incubation. Accès aigu. **[Experimental study of *Pl. berghei* infection in rodents. I. Incubation and acute infection.]**—*Arch. Inst. Pasteur Algér.* **33**, 71-77. **74**

Experimental infection of mice with *Pl. berghei* by the i/p and s/c routes resulted in respective incubation periods of 1·4 and 2·5 days and an onset of malarial paroxysm in 9·2 and 10·3 days. In rats similarly infected the incubation periods were respectively 2·1 and 5·8 days and the paroxysm time 13·7 and 16·5 days. Whilst all mice died from the infection, 6·7% and 9·7% of the rats died in the respective groups. Marked erythrocytopenia and splenomegaly were features of the infection.—E. J. L. SOULSBY.

DURAND, P. & MATHIS, M. (1955). Sensibilité de trois rongeurs sauvages tunisiens, *Mus musculus spretus, Dipodillus campestris* et *Meriones shawi* au *Plasmodium berghei* Vincke et Lips 1948. **[Susceptibility of mice and gerbils in Tunisia to *Pl. berghei* infection.]** — *Arch. Inst. Pasteur Tunis.* **32**, 17-24. **75**

Three species of Tunisian rodents were inoculated with *Pl. berghei*. *Mus. musculus spretus* proved very susceptible, individuals dying between the 12th and 14th days. *Dipodillus campestris* became slightly infected but remained so for long periods. In *Meriones shawi*, infections varied from those showing rapid increase of blood parasites in new-born hosts, to light infections in certain adult animals.—D. POYNTER.

MOULTON, J. E. & CHRISTENSEN, J. F. (1955). **The histochemical nature of *Anaplasma marginale*.**—*Amer. J. vet. Res.* **16**, 377-380. [Authors' summary slightly modified.] **76**

A. marginale in blood smears was studied by histochemical techniques. The organism showed positive reactions for desoxyribonucleic acid, ribonucleic acid, protein, and organic iron. Negative staining results were obtained for arginine, tyrosine, polysaccharide complexes, inorganic iron, calcium, lipids, fat peroxides, peroxidase, dehydrogenase, and alkaline phosphatase.

BALOZET, L. (1955). Enquête sérologique sur la toxoplasmose de l'homme et du chien dans la région d'Alger. **[Serological investigation into toxoplasmosis in man and in dogs in the region of Algiers.]**—*Arch. Inst. Pasteur Algér.* **33**, 78-83. **77**

Fifteen of 125 human sera and 31 of 105 canine sera were positive for *Toxoplasma* antibodies when tested by the complement-fixation test.—E. J. L. SOULSBY.

GEISSLER, H. (1955). Untersuchungen über die Toxoplasmose beim Huhn unter besonderer Berücksichtigung der Serodiagnostik. **[Studies on toxoplasmosis in the hen with special reference to serological diagnosis.]**—*Zbl. VetMed.* **2**, 251-283. [English, French and Spanish summaries.] **78**

A new method is described for the preparation of purified toxoplasma antigen. The use of this antigen increases the reliability of the complement-fixation test considerably.

In an experiment with 33 birds it was shown that toxoplasmosis can be transmitted successfully by contact or by oral, intraperitoneal or cloacal application. Diseased birds may lay infected eggs and chicks hatching from such eggs may carry complement-fixing antibodies. The clinical and P.M. findings of toxoplasmosis in the fowl are described.
—W. G. SILLER.

QURESHI, M. A. A. (1954). **Experimental toxoplasmosis in chicken.**—*Proc. VIth Pakistan*

Sci. Congr. Karachi, 1954. Pt. III. p. 226. [Only abst. given. Abst. from abst.] **79**

The incubation period of toxoplasmosis in day-old chicks infected with *T. gondii* by i/p or s/c injection was 6-16 days. The mortality rate was about 50%.—R.M.

AKÜN, R. & HOLZ, J. (1955). Histochemische Untersuchungen an Sarkozysten. **[Histochemistry of sarocysts.]** — *Mh. Tierheilk.* **7,** 49-52. **80**

Histological examination of sections of sarcocysts treated with different reagents revealed that only the sarcosporidia contained chromatin and an argyrophile substance, and were Gram negative. The outer layers of the cyst contained mucopolysaccharides of mesenchymal origin.—M. L. CLARKE.

GUTIERREZ, J. (1955). **Experiments on the culture and physiology of holotrichs from the bovine rumen.**—*Biochem. J.* **60,** 516-522. **81**

G. described a method of separating 3 species of rumen holotrichs, *Isotricha prostoma, I. intestinalis* and *Dasytricha ruminantium,* and of estimating their numbers. Determinations were made of their utilization of glucose and cellobiose and other carbohydrates, and of the rates of their acid fermentation production. By counting the protozoa and calculating their total nitrogen content it was found that approx. 33 g. protein per day would be supplied to the host. Cultures of isotrichs were maintained up to 30 days.—M. L. CLARKE.

See also absts. **242** (toxicity of coccidiostatic drugs); **319** (report, Zanzibar); **320** (report, Belgium [Central Africa]).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

KOBUSIEWICZ, T., DZIÓBKIEWICZ, H. & BARANOWSKI, C. (1955). Występowanie typów zarazka pryszczycy w czasie epizoocji 1951-1954. **[Foot and mouth disease virus types encountered during the 1951-54 epidemic in Europe.]**—*Méd. vét., Varsovie.* **11,** 334-337. **82**

A list of virus types encountered in 20 European countries is given. The authors describe diagnostic methods in Poland where the predominant virus type is "A_5" with "C" second and "O" recorded in only one outbreak. Type C has also been confirmed in man.—M. GITTER.

ARAMBURU, H. G., GARCIA MATA, E., PIZZI, L. & ARAGONA, J. (1953). Algunos controles en suspensiones industriales de virus aftoso. **[Examination of commercial suspensions of foot and mouth disease virus.]**—*Rev. Med. vet., B. Aires.* **35,** 157-167. [English summary.] **83**

With present commercial methods of extraction of F. & M. disease virus from tongue epithelial tissue a proportion of the virus content is unavoidably lost with the residues.—A.S.

TROPA, E. & ARAÚJO-BRANCO, A. (1954). A doença de Aujeszky em Portugal. I. Clínica e microbiologia. **[Aujeszky's disease in Portugal. I. Symptoms and microbiology.]**—*Bol. pecuar.* **22,** No. 2, pp. 21-46. **84**

NUNES PETISCA, J. L., BRAÇO FORTE, M. G., JR. & TROPA, E. (1954). A doença de Aujeszky em Portugal. II. Alguns dados anátomo e histopatológicos sobre a doença de Aujeszky em Portugal. **[Aujeszky's disease in Portugal. II. Pathology and histology.]** —*Ibid.* pp. 47-59. **85**

I. The authors confirmed the presence of Aujeszky's disease in pigs and a dog, in Portugal, and gave details of symptoms, gross lesions, and of transmission experiments carried out in the diagnosis of the disease.

II. This is a description of the histology of the lesions found in the pigs and dog, and in the rabbits which were used as experimental animals in the above-mentioned work.

—I. W. JENNINGS.

SMITH, C. E. G. & WELLS, C. W. (1955). **Rabies in Malaya.** — *Bull. Inst. med. Res., Fed. Malaya.* No. 8, pp. 26. **86**

A short account of present-day knowledge of rabies, including the clinical picture, diagnosis, pathology, and prophylactic and vaccine treatment in man, and the clin. picture, diagnosis and control of the disease in animals, with an account of the measures used to control and eliminate the disease in Malaya. Prior to 1945, the disease, almost entirely confined to dogs, occurred sporadically in the Malayan States bordering Thailand, but in 1945 it spread south and by 1952 had reached serious proportions. Compulsory mass vaccination with chick embryo vaccine (Flury strain) of dogs in all rabies-infected States and a vigorous campaign to eliminate all ownerless and unvaccinated dogs has now freed the country from the disease.

—A. ACKROYD.

COLLIER, W. A. & TIGGELMAN-VAN KRUGTEN, V. A. H. (1955). De vleermuizen-lyssa in Suriname. **[Bat-transmitted rabies in cattle in Surinam.]**—*Tijdschr. Diergeneesk.* **80,** 723-727. [English, French and German summaries.] **87**

Rabies virus was isolated from the brains of cattle in Surinam. As the dogs in Surinam are free from rabies it was surmised that the infection was transmitted by bats. No examination of bats was made. The authors discussed the literature on rabies in bats and cited 45 references.—C. A. VAN DORSSEN.

SCATTERDAY, J. E. (1954). **Rabies in the bat.** —*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 410-412. Discussion: pp. 412-413. **88**

Rabies was confirmed microscopically and by mouse inoculation tests in a Florida yellow bat *(Dasypterus floridanus)* which had bitten a boy. A subsequent survey revealed rabies in 6 of 385 bats shot in the area and also in other areas within a 49-mile radius. The positive ones included a Seminole and 5 Florida yellow bats. Negri bodies were demonstrated microscopically in 5 and atypical inclusion bodies were seen in the sixth. These also were confirmed by mouse inoculation. —T.E.G.R.

ERCEGOVAC, D. (1955). **[Evaluation of post-exposure vaccination against rabies.]** —*Vet. Glasn.* **9,** 250-259. [In Serbian. English summary.] **89**

E. stated that, since statistical data do not give a true picture of the value of post-exposure vaccination in man, the only effective method of protecting the Yugoslav population from rabies was to eliminate the source of human infection. He advocated compulsory vaccination of dogs and, if necessary, of cats, combined with eradication of foxes and wolves.—E.G.

NEITZ, W. O. (1955). **Sweating sickness: a tick-borne disease transmissible to several members of the order Artiodactyla.**—*Bull. Epiz. Dis. Afr.* **3,** In English pp. 125-126. In French p. 159. **90**

N. gives further information derived from work with *Hyalomma transiens* which he had previously [*V.B.* **25,** 3257] shown to be a vector of sweating sickness. *H. transiens* reared on rabbits and cattle can transmit infection hereditarily for five generations. The infective agent is retained by the vector irrespective of whether the adult tick is fed on a susceptible calf, an immune calf or on an insusceptible animal, the horse. The host range includes Merino sheep, goats, and pigs as well as cattle. In experimentally infected sheep the disease was severe, the symptoms in the early stages were difficult to differentiate from those of bluetongue and mortality was 100%.

SANDERS, M. & SORET, M. G. (1954). **Cultivation of animal viruses in embryonic teleost cells.**—*Trans. N.Y. Acad. Sci.* **17,** 19-25. **91**

The virus of Eastern equine encaphalomyelitis was successfully cultivated in roller tube tissue cultures of embryos of a viviparous fish of the genus *Gambusia.* Quantitative increase of virus occurred in each of 8 culture generations.—R.M.

ŻEBROWSKI, L., GRUNDBOECK, M. & ŻÓRAWSKI, C. (1955). Poziom zimnych hemaglutynin w przebiegu niedokrwistości zakaźnej koni. **[Level of cold haemagglutinins in equine infectious anaemia.]**—*Méd. vét., Varsovie.* **11,** 339-341. [English and Russian summaries.] **92**

There is a close correlation between the level of cold haemagglutinins and the course of the disease. It falls when the body temp. rises and *vice versa.* The authors concluded that for diagnostic purposes one test is not sufficient and at least 3-4 days should elapse between the tests.—M. GITTER.

NAKAMURA, R., SAKAI, T., SONODA, M., KOIKE, T., KAWATA, K. & TOO, K. (1954). **Therapeutic treatments in equine infectious anemia. IV. The use of nitromin and chloromycetin for artificially inoculated infectious anemia.**—*Jap. J. vet. Res.* **2,** 101-108. [In English.] **93**

Neither the daily i/v injection of 1–1·5 mg./kg. nitromin nor the daily oral administration of 50 mg./kg. chloramphenicol influenced the course of equine infectious anaemia in 3 horses.—R.M.

JAMIL, M. (1954.) **Reaction and fixation of lapinised rinderpest virus in the local breeds of rabbits.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. pp. 224-225. [Only abst. given. Abst. from abst.] **94**

The Nakamura III strain of lapinized rinderpest virus has undergone 113 serial passages in rabbits without change in the incubation period, reaction and lesions in infected rabbits.—R.M.

RAFYI, A., KAWEH, M. & RAMIAR, H. (1955). La conservation du virus de la peste bovine par lyophilisation. **[Conservation of rinder-**

pest virus by lyophilization.]—*Ann. Inst. Pasteur.* **88,** 793-794. **95**

Rinderpest virus, lyophilized and kept in a refrigerator at 4°C., retains its virulence for 32 months.—W. R. Bett.

Brown, C. W., Scott, G. R. & Brotherston, J. G. (1955). **Lapinised rinderpest vaccine: Post-inoculation reactions in high-grade Guernsey cattle.**—*Vet. Rec.* **67,** 467-468. **96**

Out of 145 Guernsey cattle vaccinated with lapinized rinderpest virus, 47 developed unexpectedly severe reactions consisting of fever, anorexia, profuse diarrhoea, ulceration of the buccal, lingual and pharyngeal mucous membranes, and lachrymation. The condition lasted for about 6 days, and all the affected animals recovered.—R.M.

MacFarlane, I. S. & Haig, D. A. (1955). **Some observations on three day stiffsickness in the Transvaal in 1954.**—*J. S. Afr. vet. med. Ass.* **26,** 1-7. **97**

An account of an outbreak as it affected milch cows, dry stock in good condition, and dry stock in poor condition (in which group mortality reached 29%). Glucose given i/v with or without cortisone was the treatment of choice. Present knowledge of the causal agent was discussed.—W. S. Marshall.

I. McKercher, D. G., McGowan, B., Jr. & Saito, J. K. (1954). **Studies on bluetongue. I. Isolation, identification, and typing of the bluetongue virus and a preliminary report on the serodiagnosis of the disease.**—*Proc. 91st. Ann. Meet. Amer. vet. med. Ass.,* Seattle, 1954. pp. 167-177. **98**

II. McGowan, B., Jr. & McKercher, D. G. (1954). **Studies on bluetongue. II. Field experiences with bluetongue in California.**—*Ibid.* pp. 61-64. Discussion pp. 64-65. **99**

III. Price, D. A. (1954). **Recent bluetongue investigations in Texas—efficacy of experimental vaccines and relationship of several American strains.**—*Ibid.* pp. 65-70. **100**

I. Bluetongue virus was isolated from infected sheep's blood by culture on chick embryo. Cross immunity tests indicated that only one type of virus was involved. The need for serological tests was emphasized.

II. The authors discussed the history, aetiology, symptoms and diagnosis of bluetongue. They described the clin. picture of the disease as it has occurred during the last two years in California, and reported briefly on the use in field trials of an experimental bluetongue vaccine prepared from the California strain of the virus [no details given]. They discussed the importance of the disease as it affects the sheep industry, and possible control measures.

III. The study of four bluetongue vaccines seemed to indicate that the native egg-adapted strains available in the U.S.A., if used in a polyvalent vaccine, should protect sheep against serious losses. A cross immunity test was carried out but no conclusions could be drawn because the number of sheep used was too small and reactions were slight.—T.E.G.R.

Giglietti, A. (1955). Il morbo di Teschen. **[Porcine encephalomyelitis (Teschen disease).]**—*Vet. ital.* **6,** 425-458. **101**

A useful critical review of the literature to 1953 with 94 references and 30 photographs reprinted from various sources.—J. T. Done.

I. Giglietti A. & Tiecco, G. (1955). Analisi elettroforetiche su carta in sieri di suini trattati con virus di Teschen. **[Examination by paper electrophoresis of the serum of pigs artifically infected with the virus of Teschen disease]**—*Arch. vet. Ital.* **6,** 25-32. [English, French, Spanish and German summaries.] **102**

II. Tiecco, G. (1955). La deviazione del complemento in suini, cavie e conigli trattati con virus di Teschen. **[The complement-fixation test in pigs, g. pigs and rabbits inoculated with the virus of Teschen disease.]**—*Ibid.* 33-43. [English, French, Spanish and German summaries.] **103**

III. Scatozza, F. (1955). Ricerche sugli anticorpi neutralizzanti in suini iperimmunizzati verso il virus di Teschen. **[Neutralizing antibodies in pigs hyperimmunized against the virus of Teschen disease.]**—*Ibid.* 45-55. [English, French, Spanish and German summaries.] **104**

I. Paper electrophoresis was carried out with the sera of pigs experimentally infected with Teschen disease and with hyperimmune sera obtained by s/c inoculation with virus. The sera of experimentally infected pigs which died after 9—14 days' illness showed a slight increase in γ-globulins (3%) and albumins (0.99%) and a corresponding decrease in α- and β-globulins. In the hyperimmune sera, although a large quantity of virus had been administered to the pigs, the increase in albumins and in α- and β-globulins was less marked, viz., 1.95, 1.9 and 0.95% respectively.

II. The c.f. test was applied to sera from experimentally infected pigs and from immunized pigs, rabbits and g. pigs. Results were negative except in the case of one pig

which had survived experimental infection and was subsequently hyperimmunized. It was considered that the negative results were due to low sensitivity of antigen rather than to absence of complement-fixing antibodies in the animals tested.

III. Neutralizing antibodies were demonstrated in a 1:10 suspension of brain substance of hyperimmunized pigs. The medulla oblongata and serum from the same pigs gave negative results; in the case of the spinal cord and cerebellum results were inconclusive.

—T.E.G.R.

HARNACH, R. (1955). Zapobieganie i immunoprofilaktyka przy enzootycznej grypie prosiąt. **[Immunology and prophylaxis in swine influenza.]**—*Méd. vét., Varsovie.* **11,** 261-265. **105**

H. discussed predisposing causes and aetiology. The following vaccines have been prepared and tested:— (a) virus vaccine (phenol inactivated) was found to increase the titre of antibodies in lab. animals and in experimental pigs; (b) pigs inoculated with a polyvaccine (virus + bacteria) remained healthy in contrast to unvaccinated controls; (c) a vaccine designated "BVC 67", prepared from cultures of *Pasteurella, Pseudomonas pyocyanea,* streptococci, *Corynebacterium pyogenes,* micrococci and *Haemophilus* was used on a national basis in 1954 and proved 80% successful.—J. R. MITCHELL.

SACKMANN, W. (1955). Über die Züchtung und Zytopathogenität des Schweineinfluenzavirus (SIV) in der Hühnergewebekultur. **[Chick embryo culture and pathogenicity of swine influenza virus.]**—*Arch. ges. Virusforsch.* **6,** 210-215. **106**

Earlier workers [Hjärre *et al.* (*V.B.* **25,** 4040)] studied influenza virus in porcine tissue cultures and observed the development of cell pathogenicity at the fifth passage. S. studied the development of cell pathogenicity in the same virus (Iowa Strain 15) when passaged in cultures of chick heart or lung tissue.

—A.S.

BÖRNFORS, S. & LANNEK, N. (1955). **Therapeutic trials in enzootic pneumonia in pigs.**—*Nord. VetMed.* **7,** 15-31. [In English. German and Swedish summaries.] **107**

Treatment under controlled conditions of 20 pigs with radiological signs of moderate or severe enzootic (virus) pneumonia, with aureomycin, penicillin, terramycin or sulphadimidine, but not sulphonamide caused a marked increase in their weight as compared with controls; this was due partly to increased feed consumption, and partly to a more economical utilization of the feed, but improvement in the radiological signs was minimal. The beneficial effect of chemotherapy was probably due to its effect on the secondary bacterial invaders.—A. ACKROYD.

BENDIXEN, H. C. & SJOLTE, J. P. (1955). Undersøgelser vedrørende optraeden af enzootisk (overførbar) griselammelse (poliomyelitis suum) i Danmark. **[A transmissible posterior paralysis of pigs in Denmark.]**—*Nord. VetMed.* **7,** 97-140. [In Danish. English and German summaries. Abst. from English summary.] **108**

A transmissible paralysis of pigs has been observed in Denmark since 1949. Apart from an outbreak in 1950, the incidence of the disease is sporadic and restricted to certain herds. Pigs aged 1—3 months are most commonly affected; usually less than 50% of pigs of this age develop the disease and the mortality amongst affected pigs is about 6%. Although the most common clinical syndrome was posterior paralysis, cerebral symptoms developed in about 4% of cases.

Histological lesions of the spinal cord consisted of lymphocytic and glial infiltration of the grey matter, particularly in the ventral horns. Similar lesions were present in 14% of apparently healthy slaughtered pigs from affected herds. Six piglets inoculated intracranially with a suspension of brain and spinal cord from paralysed pigs developed the disease after an average incubation period of 18 days.—R.M.

KRETZSCHMAR, C. (1954). Zur pathologischen Histologie des Zentralnervensystems bei der nervösen Staupe des Hundes. **[Histology of the central nervous system in dog distemper.]**—*Zbl. VetMed.* **1,** 366-382. [English, French and Spanish summaries.] **109**

Brain material from 17 dogs with either the nervous form of distemper or hard pad disease was examined. In 4 there was serous inflammation without formation of distinct foci in the glia. In 6 there was disseminated focal inflammation in the glia, accompanied by partial demyelination. Foci were localized particularly in the base of the rhombencephalon, the pons, the cerebellar peduncles and the cerebellar medullary substance. Fatty inclusions were present in glia cells. In the remaining 7 there was partial demyelination without marked vascular infiltration, but proliferation of vascular walls was present in

the foci. Histologically there appeared to be no difference between distemper and hard pad disease.—E.G.

WACHNIK, Z. (1955). Z zagadnień tkankolecznictwa wyciągi ze sledziony w leczeniu nosówki psów. **[Spleen extracts for treatment of dog distemper.]** — *Méd. vét., Varsovie.* **11,** 419-422. **110**

Subcutaneous and oral administration of calf spleen extracts seemed to have a beneficial effect on dogs affected with the gastro-intestinal form of distemper, but not in cases where nervous symptoms were present.—M. GITTER.

GÄRTNER, K. (1955). Untersuchungen über die Verbreitung, den Verlauf und die Diagnostik der Hepatitis contagiosa canis. **[Incidence, course and diagnosis of canine virus hepatitis.]**—*Mh. VetMed.* **10,** 412-416. **111**

A general account, containing no new information.—E.G.

KÖTSCHE, W. (1954). Beitrag zur pathologischen Anatomie und Histologie der Myxomatose des Kaninchens nach künstlicher Infektion. **[Pathology and histology of myxomatosis of rabbits following artificial infection.]** —*Arch. exp. VetMed.* **8,** 675-691. **112**

A detailed account of the pathological and histological findings in 18 rabbits artificially infected with myxomatosis. Spherical acidophile inclusions were observed in a number of typical myxoma cells.—R.M.

JACOTOT, H., VALLÉE, A. & VIRAT, B. (1955). Etude d'une souche atténuée de virus du myxome (Uriarra III d'Australie). **[Study of an attenuated strain of myxomatosis virus.]**—*Ann. Inst. Pasteur.* **89,** 8-15. **113**

The disease caused by the Uriarra III virus is characterized by absence of oedema and by formation, often precocious, of small myxoma nodules in various parts of the body surface; localization on the ears is a feature. This form of myxomatosis frequently occurs in rabbits inoculated with a pathogenic virus after immunization with the Shope fibroma virus. The essential characteristics of the virus are not modified by passage through the rabbit (inoculation, contact), passage through the chorio-allantoic membrane, or alternate passage through rabbit and membrane. It is suggested that the Uriarra III virus is a mixture, in variable proportions of a pathogenic and an attenuated strain, and the hope is expressed that a sufficiently attenuated strain may eventually be isolated in a pure state for vaccination of rabbits against myxomatosis.

—W. R. BETT.

I. GLEDHILL, A. W., DICK, G. W. A. & NIVEN, J. S. F. (1955). **Mouse hepatitis virus and its pathogenic action.**—*J. Path. Bact.* **69,** 299-309. **114**

II. GLEDHILL, A. W. & DICK, G. W. A. (1955). **The nature of mouse hepatitis virus infection in weanling mice.**—*Ibid.* 311-320. **115**

I. Mouse hepatitis virus (MHV) produces hepatitis in weaned mice (mortality 5%) and a fatal hepatitis in unweaned mice. Infection of weaned mice by *Eperythrozoon coccoides* increases the titre of MHV and its pathogenicity to the level present in unweaned mice. *E. coccoides* does not produce a liver lesion by itself, nor does it enhance the infection of MHV in unweaned mice.

II. Resistance to the combined infection is induced by MHV alone and is not primarily an antigenic response. About 10% of the strain of mice used were carriers of MHV but succumbed to a dual infection. It is suggested that normally the majority of MHV particles fail to develop once they have infected the liver cells, which are resistant to further infection but may permit development and liberation of the virus under changed circumstances.—A. SEAMAN.

HAAS, V. H. (1954). **Some relationships between lymphocytic choriomeningitis (LCM) virus and mice.**—*J. infect. Dis.* **94,** 187-198. **116**

The development of virus-mouse relationship is influenced by age of inoculated mice, route of infection, quantity of virus inoculated and by repetition of such inoculation by the same or an alternative route.—W. MANSI.

SCHÄFER, W. & ZILLIG, W. (1954). Über den Aufbau des Virus-Elementarteilchens der klassischen Geflügelpest. I. Gewinnung, physikalisch-chemische und biologische Eigenschaften einiger Spaltprodukte. **[Structure of the elementary particles of classical fowl plague virus. I. Method of obtaining and properties of some of the products of fission.]**—*Z. Naturf.* **9,** 779-788. **117**

By treating the elementary particles of classical fowl plague virus with ether, two non-infectious breakdown products were obtained, designated haemagglutinin and bound antigen. The former was a spherical structure about 30 mμ diam., containing protein and carbohydrate. It agglutinated r.b.c. and pos-

sessed virus-specific antigenic activity. The bound antigen had a maximum diam. of 15 mμ and was disposed in chain-like aggregates reaching a length of 100 mμ. It was a nucleoprotein containing at least 15% nucleic acid. Its only biological activity was that of an antigen.—R.M.

McCLURKIN, A. W., SINHA, S. K. & HANSON, R. P. (1954). **Rapid diagnosis of Newcastle disease using lung extract.**—*Amer. J. vet. Res.* **15**, 314-315. [Authors' summary modified.] **118**

A procedure for the rapid diagnosis of Newcastle disease is described. Extracts of frozen lungs were taken from chickens affected with the acute disease and tested for their ability to agglutinate erythrocytes. The results of the test were obtained within two hours after the suspected tissue was received and the inhibition of the agglutination permitted differentiation from other respiratory infections. The limitations of the method are discussed.

ATANASIU, P., BASSET, J. & ATANASIU, I. (1955). Sur l'interférence, dans la maladie de Newcastle de l'embryon de poulet, entre le virus homologue pressé, chauffé, formolé et les liquides normaux. [**Interference phenomenon in chick embryos between Newcastle disease virus subjected to the action of high pressure, heat or formaldehyde, and the normal fluids of the embryo.**]—*Ann. Inst. Pasteur.* **88**, 769-776. **119**

Evidence of the interference phenomenon was found using homologous virus which had been subjected to high pressure. The protection was apparent within 30 min. after inoculation and was at its maximum in 24 hours. Formolized virus, heated virus and normal embryonic fluids possessed similar but less well marked properties.—D. LUKE.

HASHMI, Z. A. & HASNAIN, H. (1954). **Interference by rinderpest in the haemagglutination of buffalo erythrocytes by Newcastle disease virus**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 239. [Only abst. given. Abst. from abst.] **120**

The erythrocytes of healthy buffaloes, normally agglutinable by Newcastle disease virus, did not agglutinate after the buffaloes had been inoculated with rinderpest virus. Haemagglutination disappeared 12-18 days after inoculation with rinderpest virus and reappeared some 19 days later.—R.M.

BELLER, K., & SIEGMANN, O. (1955). Problematik des Tierversuches. [**Problems of experiments with animals, with reference to Newcastle disease.**]—*Mh. Tierheilk.* **7**, 65-73. **121**

Variations in the response of individual experimental fowls and the differences in virulence of the various strains of virus make inoculation experiments for the diagnosis of Newcastle disease unsatisfactory, except when combined with repeated serological testing.

—W. G. SILLER.

KOHN, A. (1955). **Quantitative aspects of Newcastle disease virus infection. Effect of route of infection on the susceptibility of chicks.**—*Amer. J. vet. Res.* **16**, 450-457. [Author's summary modified.] **122**

Chicks, 3-6 weeks old, were most susceptible to infection with Newcastle disease virus by the intramuscular or respiratory routes, the latter comprising aerosol and intratracheal administration. Approx. 100 times the amount of virus lethal to 50% of inoculated chick embryos (e.l.d.$_{50}$) was required to initiate infection by these routes: 4,000—5,000 e.l.d.$_{50}$ were required to infect chicks by the intranasal route, and 20,000 e.l.d.$_{50}$ by the alimentary route.

CUNNINGHAM, C. H. (1954). **Studies of some factors to be considered in evaluating the effect of certain chemical agents on Newcastle disease virus.**—*Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 304-310. **123**

The effects of various chemical agents were studied on undiluted virus and in proportions of virus and chemical agent of 1 : 1 and 1 : 9 at 0°, 20°, and 37°C. for different exposure periods. In addition the effect of the chemical agents on serial 10-fold dilutions of virus at 20°C. for 15 min. was also examined. The evidence indicates that the number of infective doses of virus, the ratio of virus to chemical agents and the temperature of exposure all influence the effect of the chemical agents on N.D.V.—D. LUKE.

SCHOENING, H. W. & THOMPSON, C. H., JR. (1955). La vaccination contre la maladie de Newcastle, aux Etats-Unis. [**Vaccination against Newcastle disease in the U.S.A.**]—*Bull. Off. int. Epiz.* **44**, May, pp. 119-131. [English summary.] **124**

A review of Newcastle disease vaccination methods in the U.S.A.—D. LUKE.

SZAKMÁRY, G. & BÉKE, L. (1955). Immunizálhatóke—e H (Hertfordshire)—vakcinával a néhányhetes csirkék baromfipestis ellen? **[Immunization of young chicks with Hertfordshire strain of Newcastle disease.]**—*Mag. állator. Lapja.* **10,** 158-162. [English and Russian summaries.] **125**

Vaccination with the Hertfordshire strain of Newcastle virus caused no mortality in chicks, 1—5 weeks old, possessing an inherited immunity. In chicks over 3 weeks of age it engendered an immunity lasting at least 11 weeks while in chicks one week old it produced no immunity. Both the subcutaneous and wing stick methods of inoculation were effective, but the inhalation method was not.
—T.E.G.R.

VAN WAVEREN, G. M. & ZUIJDAM, D. M. (1955). Vaccinatie tegen pseudovogelpest (Newcastle disease) door het mengen van entstof door het drinkwater. **[Immunization against Newcastle disease by mixing vaccine with the drinking water.]**—*Tijdschr. Diergeneesk.* **80,** 685-696. [English, French and German summaries.] **126**

Hitchner B Newcastle disease vaccine was administered to chickens in the drinking water in laboratory and field tests. Satisfactory results were obtained. The duration of the immunity varied from 2½ to 4½ months.
—C. A. VAN DORSSEN.

LUKAČEVIĆ, J. (1955). Rezultati ispitivanja krvi kokoši vakciniranih pod terenskim uslovima protiv atipične kuge peradi. **[Examination of the blood of fowls after immunization against Newcastle disease.]**—*Vet. Glasn.* **9,** 284-286. [In Croat.] **127**

During the autumn of 1953 five million fowls, about 70–85% of the fowl population of northern Croatia, were immunized against Newcastle disease, using the Mukteswar vaccine. There is a table giving results of haemagglutination-inhibition tests carried out with 1,018 blood samples, taken at intervals from 10 days to 12 months after vaccination, in batches of 7–165. Specific haemagglutinins were present in 84% of those taken up to 3 months after vaccination and in 68% of those taken 4–5 months after vaccination. In those examined 6–12 months after vaccination the figure varied from 11–64%.—E.G.

BANKOWSKI, R. A. & HILL, R. W. (1954). **Factors influencing the efficiency of vaccination of chickens against Newcastle disease by the air-borne route.**—*Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 317-327. **128**

Chicks can be protected by exposure to air-borne attenuated virus. The main factor in successful immunization appears to be the retention of sufficient virus in the respiratory tract. This depends largely on particle size which is determined by the type and flow rate of the atomizer used. A tissue culture attenuated strain of N.D.V. appears to be most suitable for this type of administration.
—D. LUKE.

HANSON, P. & BRANDLY, C. A. (1955). **Identification of vaccine strains of Newcastle disease virus.**—*Science.* **122,** 156-157. **129**

Strains are typed according to their growth rate which is measured by the mean death time for chick embryos infected with the minimum lethal dose. Slow growing strains take 90—150 hours to kill embryos. Such are of low pathogenicity for poultry. Intermediate strains kill in 60—90 hours and the pathogenicity varies from low to high. Fast growing strains kill embryos in 40—60 hours and are of moderate to high pathogenicity. The intracerebral pathogenicity index, equine r.b.c. agglutination and fowl r.b.c. agglutination stability tests are also used.—D. LUKE.

REAGAN, R. L., GEUMLEK, M., CHANG, S. & BRUECKNER, A. L. (1955). **Studies of erythrocytes by electron microscopy from chick embryos infected with a strain of chronic respiratory agent of fowl number 23344.**—*Sthwest. Vet.* **8,** 362-363. **130**

Using r.b.c. from infected embryonated eggs it was possible to demonstrate virus-like bodies on the surface of the r.b.c. 24-72 hours after infection. These bodies were not observed at other times, nor in the controls.
—D. LUKE.

ADLER, H. E. (1954). **A rapid slide agglutination test for the diagnosis of chronic respiratory disease in the field and in laboratory-infected chickens and turkeys—a preliminary report.** — *Proc.* 91*st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 346-349. Discussion: pp. 349-350. **131**

The preparation of the antigen is described. Centrifuged serum samples are used, 5 mm. loopfuls of serum and antigen are mixed and results are read in 2 min. The test was of value in the diagnosis of chronic respiratory disease associated with a pleuropneumonia-like organism during the active stages of the infection.—D. LUKE.

GIROUD, P., ROGER, F. & DARTOIS, N. (1954). Comportement des sérums de divers animaux domestiques vis-à-vis de l'antigène de la psittacose. [**Behaviour of the serum of various domestic animals toward psittacosis antigen.**] —*C. R. Acad. Sci., Paris.* **238,** 419-420. **132**

Out of 40 sera from cattle on farms where abortion or atypical pneumonia had occurred, 6 were strongly positive to the complement-fixation test for psittacosis and 8 were weakly positive. Out of 55 sera from sheep in flocks where abortion had occurred, 8 were strongly positive to the test and 5 were weakly positive. A similar incidence of positive reactions was obtained with sera from dogs with nervous symptoms and from healthy cats.

—G. V. LAUGIER.

GIROUD, P. & JADIN, J. (1954). Premiers résultats concernant le virus des Bashi isolé dans la province du Kivu au Congo belge. [**A virus of the psittacosis-lymphogranuloma group causing disease in man and in cattle in the Belgian Congo.**]—*Bull. Soc. Pat. exot.* **47,** 578-588. **133**

An account of an infectious disease of Africans in the Belgian Congo, associated with the presence in the blood of rickettsial antibodies. Simultaneously, illness and death occurred amongst cattle in the same areas. No clin. cases were observed by the authors, but the blood of most of 20 cattle in an affected area agglutinated psittacosis antigen. [See also preceding abst.]—R.M.

LYNN, J. W., JR. & MORGAN, H. R. (1954). **Cytopathogenicity of animal viruses *in vitro*.** —*Arch. Path.* **57,** 301-316. **134**

The authors discussed the action of viruses on cells in tissue culture, and classified them into the following groups:—viruses not cytopathogenic (*e.g.* mumps, influenza); viruses moderately cytopathogenic (psittacosis, fowl pox, Newcastle disease, Aujeszky's disease); viruses markedly pathogenic (equine encephalomyelitis, poliomyelitis); viruses pathogenic for the cells of neoplasms (Eastern equine encephalomyelitis, influenza).—R.M.

TYRRELL, D. A. J. (1955). **New tissue culture systems for influenza, Newcastle disease and vaccinia viruses.**—*J. Immunol.* **74,** 293-305. **135**

The value of tissue culture systems in the study of virus behaviour is discussed. Details are given of the effects of the viruses on cultures of carcinoma cells, chick embryo liver, and lung cells, and information on aspects of virus interference and details of virus yield in tissue cultures are reported.

—D. LUKE.

OTT, R. L. & GORHAM, J. R. (1955). **Terramycin and magnamycin in the treatment of experimental "Salmon poisoning" in dogs.**—*N. Amer. Vet.* **36,** 574-575. **136**

Terramycin, administered by mouth at a dosage of 25 mg./kg. body wt. daily, was an effective treatment for experimental *Neorickettsia helminthoeca* infection ("salmon poisoning") in dogs. Carbomycin (magnamycin) was less effective than terramycin when administered by the same route and at the same dosage: it did not completely eliminate the infection.—R.M.

See also abstr. **139** (histoplasmosis and R. typhi infection); **316** (report Australia); **317** (report, Bermuda); **318** (report, Grenada); **319** (report, Zanzibar); **323** (book, virus research).

IMMUNITY

RICE, C. E., BOULANGER, P. & ANNAU, E. (1954). **The effect of repeated injection of dextran of polyvinylpyrrolidone on serum complement in guinea pigs.**—*Canad. J. publ. Hlth.* **45,** 264-267. [Authors' summary copied *verbatim.*] **137**

The repeated injection of either of two dextrans, intradex or macrodex, or of polyvinylpyrrolidone resulted in some decline in complement titre but not more than might be expected on the basis of plasma volume expansion.

A significant prolongation of two-stage clotting times and a decrease in total serum-protein content was recorded which may also have been related in part at least to this dilution factor.

HAŠEK, M. & HRABA, T. (1955). **Immunological effects of experimental embryonal parabiosis.** [Correspondence.] — *Nature, Lond.* **175,** 764-765. **138**

Embryonal parabiosis was established experimentally by interposing a piece of embryonic tissue (blastoderm of egg incubated for 10—24 hours) between the chorio-allantoic membranes of 2 incubated eggs, attaching the eggs by means of paraffin wax and incubating them in the normal way. Thus the extra-embryonal circulation was connected (and

parabiosis was interrupted at hatching). Exchange of blood between the parabionts was confirmed immediately after hatching by demonstration, by means of agglutination tests, of the partner's r.b.c. in the parabiont's blood. It was observed that, while normal chicks elaborated antibodies against antigens from other normal chicks, the parabiont did not elaborate antibodies against antigens from its partner, though it produced antibodies to other chicks' antigens.—T.E.G.R.

SALVIN, S. B. & BELL, E. J. (1955). **Resistance of mice with experimental histoplasmosis to infection with** *Rickettsia typhi*.—*J. Immunol.* **75,** 57-62. **139**

I/p injection of a sublethal dose of *Histoplasma capsulatum* in mice inhibits the effect of i/p inj. 2 days later with a lethal dose of *R. typhi*. No resistance is seen when mice are inoculated simultaneously with the two agents. This antagonistic action is not due to specific antibodies, since immune serum from g. pigs with experimental histoplasmosis had no neutralizing effect in the mouse toxin neutralization test, nor does fixation of complement occur in the presence of *R. typhi* antigen.—W. R. BETT.

SIMONSEN, M. (1955). **Artificial production of immunological tolerance. Induced tolerance to heterologous cells and induced susceptibility to virus.** [Correspondence.]—*Nature, Lond.* **175,** 763-764. **140**

Chick embryos were injected i/v with blood from adult turkeys or geese, and turkey embryos were injected i/v with blood from adult fowls. It was observed that:— some degree of tolerance to heterologous blood could be brought about; a state of tolerance was more easily induced between fowl and turkey than between fowl and goose—in no case was complete tolerance achieved.

—T.E.G.R.

WAKSMAN, B. H. & ADAMS, R. D. (1955). **Allergic neuritis: an experimental disease of rabbits induced by the injection of peripheral nervous tissue and adjuvants.**—*J. exp. Med.* **102,** 213-236. **141**

Injection of rabbits with rabbit spinal cord, tubercle bacilli, and mineral oil, causes allergic encephalomylitis, with lesions in the c.n.s., nerve roots, spinal ganglia, and peripheral nerves. With rabbit sciatic nerve or spinal ganglia as antigen, the lesions are confined to the roots, ganglia, and peripheral nerves (experimental allergic neuritis). Optic nerve produces allergic encephalomyelitis, not neuritis. Experimental allergic neuritis, an entity previously unknown, is characterized by symmetrical, ataxic paresis of the limbs, retention of sphincter control, and elevation of c.s.f. protein without increase in cells.

—W. R. BETT.

SMITH, D. J. & ALPERT, S. (1955). **Histamine death in swine.**—*Fed. Proc.* **14,** 140-141. [Only abst. given. Abst. slightly modified]. **142**

The LD_{50} and mechanism of death produced by histamine was studied in 26 pigs weighing 15-35 kg. All animals were lightly anaesthetized with pentobarbitone. The LD_{50} was 1.35 mg./kg. of histamine base when injected i/v. I/v injection of histamine results in immediate respiratory distress, characterized by asthmatic breathing and retraction of the intercostal spaces on inspiration. Respiratory failure occurs first, followed in 10-15 min. by cessation of the cardiac action. The electrocardiogram showed evidence of myocardial anoxia immediately following injection of histamine and persisting until death. Pathologically, histamine death in pigs was characterized by enlargement of the right side of the heart and coronary veins; marked distension of the lungs with rupture of the alveoli and "bleb" formation with large areas of atelectasis. Death resulted from a combination of bronchoconstriction and pulmonary vasoconstriction, resulting in a terminal failure of the right heart.

EYQUEM, A. & MILLOT, P. (1954). Les groupes sanguins des chèvres. **[Blood groups of goats.]**—*C. R. Soc. Biol., Paris.* **148,** 1224-1225. **143**

Several red cell antigens in the goat were demonstrated by using goat immune iso-antibodies prepared by artificial immunization. The use of sheep immune iso-antibodies demonstrated a relationship between certain goat and sheep red cell antigens.

—G. FULTON ROBERTS.

CRONIN, M. T. I. (1955). **Haemolytic disease of newborn foals.**—*Vet. Rec.* 479-494. **144**

Observations extending over 4 years on 27 mares and 29 foals are reported. The signs of haemolytic disease are weakness, tachycardia and accelerated respiration. Icterus and haemoglobinuria are not common. There is an anaemia but no reticulocytosis. Leucocytes are unaffected. In early cases the

lesions are general pallor, turgidity of the spleen, vacuolation and centrilobular necrosis of the liver cells and renal congestion. In later cases these changes are more marked, especially in the kidney. The indications for exchange transfusion are given: donor's blood, volume to be exchanged and technique should be considered. Prognosis depends upon the duration and nature of the signs, the blood picture and the antibody titre of the dam. Serological examination during the last month of pregnancy is recommended to detect sensitization. C. used the sera of 2 horses for these tests. Where indicated the foals should be prevented from taking colostrum.

—J. SEAMER.

See also absts. **15-16** (TB.) **21** (erysipelas in turkeys); **22-24** (Pasteurella infection); **38-41** & **66-67** (brucellosis); **50** (V. fetus); **56** (haemagglutination test in Br. abortus infection and TB.); **59** (histoplasmosis); **78** (toxoplasmosis in fowls); **89** (rabies); **92** (equine infectious anaemia); **94-96** (rinderpest); **98-100** (bluetongue); **101-104** (Teschen disease); **105-106** (Swine influenza); **118-120** & **124-129** (Newcastle disease); **158** (palpebral test in Haemonchus infestation); **160** (Nippostrongylus).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

KETTLE, D. S. & UTSI, M. N. P. (1955). *Hypoderma diana* **(Diptera, Oestridae) and** *Lipoptena cervi* **(Diptera, Hippoboscidae) as parasites of reindeer** (*Rangifer tarandus*) **in Scotland with notes on the second-stage larva of** *Hypoderma diana*.—*Parasitology*. **45,** 116-120. **145**

H. diana, a parasite of red deer was recovered in Scotland from reindeer imported from Sweden. The larvae probably migrated *via* the neural canal. The spines on the larvae of *H. diana* from red deer were compared with those from the reindeer and with the spines on the larvae of *H. (Oedemagena) tarandi,* the reindeer warble-fly.

The deer ked *Lipoptena cervi* was also found on the reindeer.—JAS. G. O'SULLIVAN.

KENNY, J. E. & NUALLAIN, T. O. (1955). **Observations on the warble fly problem. Internal medication with phenothiazine, phenothiazine + hexachloroethane and "hypolin" against the migrating larvae.**—*Irish vet. J.* **9,** 148-154. **146**

Under field conditions in Ireland, the anthelmintics phenothiazine, hexachloroethane and the proprietary preparation "hypolin" (containing phenothiazine, hexachloroethane plus an organic tin compound) were shown to be ineffective in preventing the development of *Hypoderma bovis.* Cattle were dosed during November to March. The authors suggest that their failure to control the parasite may have been due to treatment commencing too late in the year. [It is noteworthy that the original trials by Worden (1953) which suggested that "hypolin" was extremely effective, involved dosing during December to March].—S. BRIAN KENDALL.

BOERO, J. J. (1953). La resistencia de la garrapata a clorados. **[Resistance of ticks to insectides.]**—*Rev. Med. vet., B. Aires.* **35,** 169-174. **147**

A dipping campaign for the eradication of *Boophilus microplus* from cattle in the province of Entre Ríos, Argentina, was hampered after 6 years by the development of arsenic-resistant ticks. This was overcome by the use of benzene hexachloride and chlorinated camphene. B. discussed the possible development of ticks resistant to these insecticides.—R.M.

BOCH, J. (1955). Abwehrreaktionen des Körpers bei der Ohrräude der Kaninchen (*Psoroptes cuniculi*). **[Defence reactions of the rabbit in psoroptic mange of the ears.]**—*Z. Parasitenk.* **17,** 138-143. **148**

Young rabbits artifically infected with *Psoroptes cuniculi* were more severely affected than older rabbits. Histological examination of infected ears revealed proliferation of the dermal papillae, capillary congestion and cellular infiltration of the dermis with a tendency towards localized suppuration. A proliferation of the epithelial layers occurred leading to hyperkeratosis. "Nests" of mites were frequently seen in the corium. Terminal changes included destruction and shedding of the epidermis with surface and later deep suppuration which, it is stated, may lead to the death of the animal.—E. J. L. SOULSBY.

See also absts. **90** (tick-borne sweating sickness); **182** (effect of mite-infested bran on pigs); **320** (report, Belgium [Central Africa]); **321** (report, Netherlands); **322** (report, U.S.A.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

GORDON, H. McL. (1955). **Some aspects of fascioliasis.**—*Aust. vet. J.* **31,** 182-188. **149**

G. reviews the problem of fascioliasis with special reference to the Australian environment. A detailed study of conditions affecting the epidemiology is given and the need for further work is shown.—

—R. I. SOMMERVILLE.

JENNINGS, F. W., MULLIGAN, W. & URQUHART, G. M. (1955). **Some isotopic studies on the blood loss associated with *Fasciola hepatica* infection in rabbits.**—*Trans. R. Soc. trop. Med. Hyg.* **49,** 305. **150**

The anaemia occurring in fascioliasis is essentially similar to that which is seen in chronic haemorrhage. The presence of haemoglobin and r.b.c. in the caeca of flukes further substantiates this contention. In isotope studies, using r.b.c. labelled with ^{32}P, it was estimated that the host loses 0.2 ml. of blood per fluke per 24 hours. Lower figures were obtained using plasma labelled with ^{131}I.

—E. J. L. SOULSBY.

ABDUSSALEM, M. & SARWAR, M. M. (1954). **Intermediate host of *Schistosoma turkestanicum* in Pakistan.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 228. [Only abst. given. Abst. from abst.] **151**

Schistosome cercariae from *Limnaea acuminata* var. *rufescens,* collected near Rawalpindi, gave rise to *S. turkestanicum* infestation when inoculated s/c into g. pigs, and when given by mouth to a lamb.—R.M.

LITALIEN, F. & DESCHIENS, R. (1954). Comportement de mollusques vecteurs des bilharzioses en présence de nitrates et de nitrites alcalins. [**Action of water containing nitrates and nitrites on snails.**] —*Bull. Soc. Pat. exot.* **47,** 525-531. **152**

The survival time of fish *(Carassius auratus)* and two snails *(Planorbis glabratus* and *Bulinus contortus)* was noted after exposure to the nitrates and nitrites of sodium and potassium in concentrations of 100 mg., 500 mg. and 1 g. per 1,000 ml. of water, with and without aeration. The snails appeared to tolerate nitrates better than nitrites. In a nitrate concentration of 1 g. per 1,000 ml. *Planorbis* survived 4—5 days and *Bulinus* 5—6 days.—M. L. CLARKE.

HIRSCH, E. A. (1955). **A note on *Capillaria plica* infestation in a foxhound.**—*Irish vet. J.* **9,** 106. **153**

Two male and one female *C. plica* were recovered from the urinary bladder of a male hound, which had chronic cystitis and interstitial nephritis.—M. L. CLARKE.

MASTERTON, J. P. & LEWIS, H. E. (1955). **Trichinosis in Greenland.**—*Lancet.* **269,** 591. **154**

Of 9 sledge-dogs examined in North-East Greenland 7 were found to be infested with *Trichinella.* No infestation was found in 6 foxes.—W. R. BETT.

VARGES, W. (1955). Abtöten von Trichinen durch Kälteeinwirkung. [**Killing of *Trichinella* in meat by the action of cold.**]—*Mh. VetMed.* **10,** 152-154. **155**

Storage for 4 days at −17°C. or 14 hours at −24°C. is sufficient to destroy *Trichinella spiralis* in infested pork.—W. G. SILLER.

SLOAN, J. E. N., KINGSBURY, P. A. & JOLLY, D. W. (1954). **Preliminary trials with piperazine adipate as a veterinary anthelmintic.**—*J. Pharm., Lond.* **6,** 718-724. **156**

As a result of trials on the following animals which were dosed at or around the rates shown, it was found that piperazine adipate was efficient against members of the Ascaroidea :— Dogs 200 mg., pigs 400 mg., horses 400 mg., cats 100 mg., poultry 400 mg., all per kg. body wt. The compound also proved useful against redworms and oxyurids in horses, nodular worms in pigs and *Uncinaria stenocephala* in dogs. It has a wide margin of safety, is easily administered and requires no supporting therapy.—D. POYNTER.

HARBORD, R. S. (1954). **Observations on the incidence and treatment of hookworms in dogs.**—*Irish vet. J.* **8,** 251-255. **157**

Hookworms *(Uncinaria stenocephala),* and ascarids *(Toxocara canis),* were expelled from dogs by the administration of toluene (methyl benzene), in capsules, at the dosage rate of one ml. per 10 lb. body wt. It was considered necessary to fast the dog 24 hours before dosing. Repeated dosing was required in some cases before a negative faecal egg count was obtained. The increase of the dose of toluene to 2 ml. per 10 lb. body wt. produced some evidence of toxicity. Toluene was ineffective when given with castor oil, or as an emulsion.—D. W. JOLLY.

PATYK, S. (1954). Znaczenie odozynu śródskórno-powiekowego dla diagnozy hemonchozy u owiec i kóz. [**Significance of the**

intradermo-palpebral test for the diagnosis of *Haemonchus* infestation in sheep and goats.] —*Acta parasit. polon.* **2,** 53-64. [In Polish. English and Russian summaries.] **158**

An early and a delayed reaction have been observed in both goats and sheep, but results in the goat appear to be more accurate. Although P. claims good results, especially those obtained by the early reaction, this test cannot be considered a specific one. In a number of animals which had given a positive reaction to the test no evidence of the presence of *Haemonchus contortus* was found at P.M. examination. No correlation between intensity of infestation and the size of the reaction has been established.—J. R. MITCHELL.

HERLICH, H. (1954). **The life history of *Nematodirus helvetianus* May, 1920, a nematode parasitic in cattle.**—*J. Parasit.* **40,** 60-70. **159**

H. has studied both the preparasitic and parasitic stages of *N. helvetianus* as well as the course of the infection in parasite-free calves dosed with infective larvae.

Temperature was found to affect the rate of development of the eggs. Development was held up at low temperatures but the eggs were not damaged, eggs kept at −10°C. for 21 days developing normally when placed in an incubator at 28°C. At room temp. of 20°—22°C. about 75% of the eggs reached the infective stage. The optimum temp. for development was 28°—29°C., but development took place at 34°—35°C. and even at 38°—39°C. 15% of the eggs succeeded in reaching the infective stage.

At 28°C. hatching began on the 8th day and almost all had hatched by the 20th day. Stages in the development of the egg are described and descriptions are given of the first, second and third stage larvae. Illustrations are also given of these stages.

Calves were experimentally infected using third stage larvae. One calf was killed 5 hours after dosing, another 4 days after dosing, and a third 79 days after infection. From the stages recovered from these calves the parasitic stages of the life cycle are described. The larva reaches the fourth stage by the 8th day of infection and sex is differentiated at this stage. By the 15th day most of the worms are in the fifth stage and are in close contact with the intestinal wall coiled around and amongst the villi of the small intestine. The prepatent period ranged from 21 to 26 days whilst the patent period ranged from 12-13 days. There seemed to be some degree of correlation between the patent period and the age of the calf at the time of infection, the older the calf, the shorter the patent period. Superinfection was produced by a dose of 227,000 infective larvae in a 3-month-old calf which had first been infected at one month of age using 150,000 larvae. When 6 months old this same calf was resistant to attempted re-infection with 100,000 larvae.

—T. E. GIBSON.

LELAND, S. E. JR., LINDQUIST, W. D. & LILLEVIK, H. A. (1955). **An electophoretic and chemical fractionation study of sera from rats immunized against the nematode *Nippostrongylus muris*.** — *Exp. Parasit.* **4,** 208-225. **160**

Rats were injected with increasing numbers of *N. muris* larvae at 2-week intervals. Serum determinations made on various days between the injections revealed an increase of total protein as the number of larvae above 1,000 injected was increased and a temporary increase in the β- and total globulin which fell when inj. ceased. There was no significant change in the γ-globulin. The serum changes were interpreted as a response of the host to injury by migrating larvae.

New modifications for determining total serum protein of rats by the biuret reaction and for fractionating rat sera into albumin and globulin utilizing sodium sulphite are given.

—D. POYNTER.

FUDALEWICZ-NIEMCZYK, W. (1955). Występowanie nicienia płucnego *Cystocaulus ocreatus* (Railliet & Henry 1907) u owiec w Polsce. **[*Cystocaulus ocreatus* in sheep in Poland.]** —*Méd. vét., Varsovie.* **11,** 458-459. **161**

A description of the morphology and life-history of the parasite, the presence of which was first recorded in Poland in 1954. Snails of the genera *Helicella, Helix, Agriolimax* and *Limax* act as intermediate hosts. The clin. symptoms in sheep resemble "husk" and in cases of mixed infestation with other lungworms the prognosis is grave.—M. GITTER.

DURBIN, C. G. (1954). **Emetine hydrochloride for the treatment of sheep and goats infested with protostrongyline lungworms.**—*Vet. Ext. Quart. Univ. Pa.* No. 133, pp. 49-52. **162**

An account of the treatment with emetine hydrochloride of 27 sheep with combined *Protostrongylus rufescens* and *Muellerius capillaris* infestation, and of 8 goats with *M.*

capillaris infestation. The dosage used was that recommended by Turunova [*V.B.* **21**, 1420].—R.M.

IRFAN, M. & SARWAR, M. M. (1954). **Studies on the development of *Ascaris vitulorum*.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 228. [Only abst. given. Abst. from abst.] **163**

The prepatent period of *A. vitulorum* infestation in buffalo calves was 25 days. Ova developed into the infective stage in 11 days at 26°C. No development took place below 10°C. or above 30°C.—R.M.

BOCH, J. (1955). Zur Histopathologie der Magenwurmseuche der Hühner. **[Histopathology of lesions caused by *Acuaria* in the gizzard of the fowl.]**—*Z. Parasitenk.* **17**, 131-137. **164**

Apart from serous and cellular infiltration between the keratin layer and mucous membrane, the main lesion is the formation of worm nodules in the muscular coat of the gizzard. These may contain any stage of the parasite and pass through various phases of leucocyte infiltration, fibrotic encapsulation and calcification.—E. J. L. SOULSBY.

KERSHAW, W. E., LAVOIPIERRE, M. M. J. & BEESLEY, W. N. (1955). **Studies on the intake of microfilariae by their insect vectors, their survival, and their effect on the survival of their vectors. VII. Further observations on the intake of the microfilariae of *Dirofilaria immitis* by *Aëdes aegypti* in laboratory conditions: the pattern of the intake of a group of flies.**—*Ann. trop. Med. Parasit.* **49**, 203-211. [Authors' summary modified.] **165**

The results of experiments to compare the actual and the expected intake of the microfilariae of *D. immitis* by *A. aegypti* under lab. conditions were re-examined in such a way as to determine the pattern of the intake of a group of flies. It was shown that, though there are individual variations in a group of flies, the actual intake, the expected intake (both of which are measures of the intake of microfilariae), the population exposed, and, in the conditions of the experiment, the population at risk (which are measures of the canine reservoir) are all related, and that their relations are capable of mathematical analysis. A group of flies feeding to repletion takes in a little more than half as many microfilariae as would be expected from a knowledge of the size of the individual blood meal and the concentration of microfilariae in the peripheral blood of the host. The ingestion of large numbers of microfilariae is lethal to the fly, and it was estimated that for this reason not more than half of them live long enough to permit development of the microfilariae to the infective form.

INNES, J. R. M. & PERUMAL PILLAI, C. (1955). **Kumri—so-called lumbar paralysis—of horses in Ceylon (India and Burma), and its identification with cerebrospinal nematodiasis.**—*Brit. vet. J.* **111**, 223-235. **166**

Four cases of "kumri" in horses were studied; two responded to treatment with diethylcarbamazine acid citrate ("caricide") and two died. Focal malacia similar to that in nematode invasion of the nervous system was noticed. This finding together with the clin. history and nervous symptoms and the seasonal incidence of the disease were considered suggestive of filariasis.—T.E.G.R.

BOCH, J. (1955). Ergebnisse parasitologischer Kotuntersuchungen von gesunden Schlachtschweinen. **[Results of parasitological examination of faeces of healthy slaughtered pigs.]**—*Mh. Tierheilk.* **7**, 74-80. **167**

Parasitological examination of the faeces of 500 apparently healthy slaughter pigs revealed the economic importance of subclinical helminth infestation: 78.4% were infested and about two thirds of these harboured three or more species of parasitic helminths.

—W. G. SILLER.

ROBERTS, F. H. S. (1955). **Field trials on the evaluation of tetrachlorethylene as an anthelmintic for cattle.**—*Aust. vet. J.* **31**, 165-169. [Author's summary copied *verbatim*.] **168**

Field trials on the value of tetrachlorethylene as an anthelmintic for cattle are reported. The drug was used at dose rates of 10 ml., 12.5 ml. and 15 ml. per 100 lb. body weight following stimulation of the oesophageal groove reflex with 60 ml. of 10% sodium bicarbonate solution.

Treatment, commenced at one month of age and continued at intervals of four weeks, was highly effective against *Haemonchus placei*, but failed to control *Bunostomum phlebotomum* and *Cooperia* spp. Infestations with *Ostertagia* and *Trichostrongylus* were too light to permit any conclusion. As judged by results against *H. placei*, successful stimulation of the oesophageal groove reflex by

sodium bicarbonate was obtained in 86% of treatments.

WHITTEN, L. K. (1954). **Some observations on the effect of drenching young sheep with phenothiazine.**—*Proc. N.Z. Soc. Anim. Prod.* **14**, pp. 84-90. **169**

A body wt. response of over 5 lb. in lambs, which could be directly attributed to the anthelmintic action of phenothiazine, was observed in only 7 of 60 trials carried out in New Zealand. W. discussed the significance of this finding, and called for an investigation into other causes of unthriftiness in sheep apart from a helminth infestation.

—D. W. JOLLY.

See also abst. **316** (report, Australia).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

MÜLLER, B., WERLE, E. & SELL, J. (1955). Innersekretorisch wirksame Nebennierenmarksgeschwulst (Phäochromocytom) bei einem Hund. **[Chromaffin tumour of the adrenal medulla in a dog.]**—*Zbl. VetMed.* **2**, 289-300. [English, French and Spanish summaries. English summary modified.] **170**

A tumour of the left adrenal gland was found in a dog that died after sudden and severe respiratory distress. The heart, coronary arteries and lungs showed signs of a severe hypertension of short duration. A diagnosis of phaochromocytoma was confirmed histologically and the presence of noradrenaline was demonstrated in the tumour. No adrenaline was present.

RISER, W. H. (1955). **Skin tumors of dogs.**—*Mich. St. Coll. Vet.* **15**, 199-204. **171**

A broad account of tumours (not only of the skin) of dogs, with references to surgical and X-ray treatment, based on a series of 1,148 tumours. A table shows the classification of tumours "amenable to treatment" of the testis (25), mammary gland (186), skin (668).—E. COTCHIN.

ZIMMERMAN, H. M. (1955). **The nature of gliomas as revealed by animal experimentation.**—*Amer. J. Path.* **31**, 29. **172**

A review of animal experiments, and a discussion of their implications for the classification and interpretation of human gliomas. Experimental gliomas are multipotential. When a chemical carcinogen is implanted in the brain of a mouse, the type of glioma which results depends on the site of implantation. Many different adult and morphologically distinct glial cells begin to proliferate almost simultaneously to produce a neoplasm. By transplantation, the mixed character of such an experimental tumour can be revealed by establishing two or more different sublines of "pure" gliomas. The environment of an experimental glioma can determine its histological appearance: for example a mouse ependymoma grew as an undifferentiated glioma when passaged on the chorioallantoic membrane, but resumed its ependymomal appearance when transferred back to mice. X-rays produced morphological changes in the appearance of an experimental ependymoma. ". . . Gliomas are not always what they seem. The environment in which they find themselves, their sites of origin, and such external influences as roentgen irradiation, all affect their appearance. Perhaps there are many more equally important and as yet undiscovered influences."—E. COTCHIN.

SVANBERG, O. & ABERG, E. (1955). Milieubedingte Voraussetzungen der Lymphadenose des Rindes. **[Environmental predisposition of cattle to lymphadenosis. Preliminary communication.]**—*Schweiz. Arch. Tierheilk.* **97**, 294-296. [English, French and Italian summaries.] **173**

The spread of bovine lymphatic leucosis in the past 15 years in Sweden may be related to the grazing of animals on poor weed-grown phosphorus-deficient pastures, with consequent encouragement, especially in dry summers, to ingest plants such as *Ranunculus* and *Caltha* species which they would normally avoid.

—E. COTCHIN.

GENTRY, R. F. & BURMESTER, B. R. (1955). **Tumor incidence in the progeny of hens repeatedly injected as adults with visceral lymphomatosis virus.**—*Poult. Sci.* **34**, 44-47. [Authors' summary copied *verbatim.*] **174**

The occurrence of visceral lymphomatosis among 70 progeny hatched from eggs laid during a 5-week period when the dams received 28 intravenous injections of the virus of this disease was no greater than among 77 progeny of the same dams from eggs laid prior to the injection period. The failure to

demonstrate an increase of the disease in the progeny of hens repeatedly injected with the virus may be related to the failure to induce infection in the dams by this procedure.

ECKERT, E. A., BEARD, D. & BEARD, J. W. (1955). **Dose-response relations in experimental transmission of avian erythromyeloblastic leukosis. V. Influence of host age and route of virus inoculation.** —*J. nat. Cancer Inst.* **15,** 1195-1207. [For previous parts, see *V.B.* **25,** 2484-2486.] **175**

Chicks aged 21 days were from 23 to 68 times more resistant to infection with the virus of avian erythromyeloblastic leucosis than chicks aged 3 days. The authors compared the response of chicks of these ages to infection by i/v, i/m, i/p, and s/c inoculation and by inoculation into the bone marrow of the tibia.—R.M.

I. ECKERT, E. A., GREEN, I., SHARP, D. G., BEARD, D. & BEARD, J. W. (1955). **Virus of avian erythromyeloblastic leukosis. V. pH stability of the virus particles, the infectivity and the enzyme dephosphorylating adenosine triphosphate.**—*J. nat. Cancer Inst.* **15,** 1209-1215. **176**

II. GREEN, I. & BEARD, J. W. (1955). **Virus of avian erythromyeloblastic leukosis. VI. Properties of enzyme associated with the virus in dephosphorylating adenosine triphosphate.**—*Ibid.* 1217-1229. [For previous parts, see *V.B.* **25,** 2479-2481.] **177**

I. The virus of avian erythromyeloblastic leucosis was most infective between pH 6 and 9, with greatest infectivity at pH 7. Dephosphorylation of adenosine triphosphate by enzyme activity present in the blood plasma of infected chicks, thought to be due to the virus, occurred within the same range of pH.

II. The enzyme which dephosphorylates adenosine triphosphate and is present in the blood plasma of infected chicks, is inseparable from the virus of avian erythromyeloblastic leucosis.—R.M.

NUTRITIONAL AND METABOLIC DISORDERS

SIMONNET, H. (1955). L'eau.—Besoins de l'organisme. Métabolisme. — Influence de l'abreuvement sur la production animale. [**Bodily requirements and metabolism of water. Influence of water supply on animal production.**]—*Rev. Élev.* **8,** 179-208. **178**

This review with an extensive bibliography, considers the absorption, circulation, storage, utilization and elimination of water, as well as the maintenance of its equilibrium. The requirements of water in several domestic species are discussed.—D. POYNTER.

DURRELL, W. B. (1955). **Anoestrus in heifers associated with plane of nutrition.**—*Canad. J. comp. Med.* **19,** 144-152. **179**

Observations were made on the rations, growth, state of the genital organs and blood phosphorus levels of dairy cattle and heifers with anoestrus. An association was found between a low plane of nutrition with consequent lack of good physical condition and the presence of anoestrus. A correction of 61% of anoestrous cases was obtained by the provision of 5 lb. of grain mixture daily per animal, with a concurrent improvement of physical condition. Adequate lighting and the initial condition of the animal were factors involved in recovery. It is recommended that before hormone therapy is undertaken in cases of anoestrus, the state of nutrition should be examined.—A. GREIG.

WRIGHT, M. M. & TEMPERTON, H. (1955). **Curled tongue in turkey poults.**—*Vet. Rec.* **67,** 510-513. **180**

Typical symptoms of curled tongue were observed in 79 out of 450 poults aged from 4 to 39 days, and fed a dry mash. When the mash was given in a moistened condition from the time of hatching, only an isolated case of curled tongue was observed. A large proportion of affected poults recovered when wet mash was substituted for dry mash. There was no evidence of nutritional deficiency or of inheritance of the condition.—R.M.

ISHIGAMI, N. (1953). [**The effect of yolk removal on the early growth of the chick.**]—*Bull. Fac. Agric., Kagoshima Univ., Japan.* No. 2, pp. 159-163. [In Japanese. Abst from English summary.] **181**

The average weight of the yolk in newly-hatched chicks was 8.8 g. The yolk was completely absorbed 70—90 days after hatching. Decrease in body wt. which occurred between hatching and the first feed was attributed to decrease in wt. of the yolk sac. Removal of the yolk sac immediately or 24 hours after hatching resulted in retarded growth and very often death. At the age of 3 days this operation caused a small retardation of growth, while at the age of 3 weeks no retardation was observed.—R.M.

STAHL, W., WIESNER, E. & WEISS, H. T. (1953/54). Versuche zur Verfütterung vermilbter Kleie an Schweine. **[Experiments on feeding mite-infested bran to pigs.]**—*Wiss. Z. Humboldt-Univ.* **3,** 273-274. **182**

Feeding trials were carried out for 20 weeks with six-month-old pigs which received up to 350 g. daily of mite-infested bran in their rations. No clinical or P.M. changes were noted in pigs over 50 kg. live weight.

—J. A. NICHOLSON.

KOLLER, R. (1955). Spezifisch (tier-) sexualaktive Stoffe in Pflanzen. **[Substances in plants which affect the reproductive system of animals. A review.]**—*Fortpflanzung.* **5,** 32-33 & 45-46. **183**

This is an annotation mainly of the Australian, American and British work published 1947-54 on oestrogens in pasture, with emphasis on subterranean clover, and also on the position with regard to vitamin E. Most of the relevant published work comes under discussion.—F. L. M. DAWSON.

CURNOW, D. H. & ROSSITER, R. C. (1955). **The occurrence of genistein in subterranean clover (*T. subterraneum,* L.) and other *Trifolium* species.**—*Aust. J. exp. Biol. med. Sci.* **33,** 243-248. [Authors' summary modified.] **184**

More than 120 strains of subterranean clover were examined for genistein content. All strains, without exception, contained appreciable concentrations of this oestrogen in the leaf fraction. Of a number of other species of *Trifolium* examined, most were genistein-free. However, the concentration in one species *(T. globosum)* was comparable with that in subterranean clover. The authors discussed briefly the relevance of these findings to the sheep infertility problem.

TAYLOR, J. H., GORDON, W. S. & BURRELL, P. (1954). **The effect of supplementing the diet of thoroughbred foals with aureomycin hydrochloride.**—*Vet. Rec.* **66,** 744-748. [Authors' summary slightly modified.] **185**

A supplement of 50 to 100 mg. of aureomycin hydrochloride was administered twice daily to a controlled group of 6 Thoroughbred foals for the first 9 months of life. During the period of supplementation a significant increase in growth rate occurred. Following the withdrawal of the aureomycin supplement a fall in growth rate occurred, but this was not significant. There was no improvement in the utilization of food as measured by the intake of corn, and no alteration in bone development was discernible by X-ray examination.

Detectable aureomycin blood levels were established up to 4 hours after feeding and aureomycin was detectable in the faeces throughout the entire period of supplementation.

TAYLOR, J. H. & GORDON, W. S. (1955). **Growth-promoting activity for pigs of inactivated penicillin.** [Correspondence.] —*Nature, Lond.* **176,** 312-313. **186**

In two groups of experiments, procaine benzylpenicillin which had been deprived of its antibacterial activity by heat, by the action of penicillinase, or by contact with heavy metals, produced a mean increase of 9.4% in the growth rate of pigs, regardless of whether it was given orally or by intramuscular injection. Active procaine benzylpenicillin given *per os* produced a mean increase of 14.3%. The difference between the two effects was found to be statistically insignificant.

—G. P. MARSHALL.

MELNYKOWYCZ, J. & JOHANSSON, K. R. (1955). **Formation of amines by intestinal microorganisms and the influence of chlortetracycline.**—*J. exp. Med.* **101,** 507-517. **187**

The results suggest that appreciable amounts of amines are produced from amino-acids by micro-organisms in the intestine of the rat and that these might be toxic. Chlortetracycline (aureomycin) suppressed the production of decarboxylating enzymes hence decreasing amine formation and, it is suggested, accelerating growth.—D. POYNTER.

LIBBY, D. A. & SCHAIBLE, P. J. (1955). **Observations on growth responses to antibiotics and arsonic acids in poultry feeds.**—*Science.* **121,** 733-734. **188**

Over a period of 4 years the weight gain in antibiotic fed chicks over that of controls dropped from 20% to 3%. When the yearly controls were compared it was found that the 4th year controls had gained 20% over the 1st year controls. Mortality had dropped from 8.5% to 2.8%. The effect seems to be due to depression of the flora of the whole environment by the antibiotics/arsonic acids.

—A. SEAMAN.

BALLOUN, S. L. (1955). **The effect of quaternary ammonium derivatives in chick diets.**—*Poult. Sci.* **34,** 191-196. [Author's summary modified.] **189**

In a series of seven experiments in "old" and "new" environments, four alkyl quater-

nary ammonium derivatives consistently improved the efficiency of feed utilization of 8-week-old chicks. Growth was consistently improved in the "old" but rarely in the "new" environment. When growth was improved there was a tendency for this effect to be greater in the later stages of growth, especially when the drugs were used at the higher levels. The best results were obtained when the drugs were fed only during the later stages of growth, or at a low level (35-50 mg./lb.) initially, followed by a higher level (75-150 mg./lb.) during the later stage of growth.

The effects on feed efficiency and growth suggest that the activity of these drugs may be of two kinds: (1) a growth effect similar to that obtained with antibiotics, which is dependent upon the environment and (2) an improvement in the utilization of feed, which is independent of the environment.

JARRETT, I. G. & POTTER, B. J. (1954). **The effect of glucose on blood pyruvate in sheep.**—*Aust. J. exp. Biol. med. Sci.* **32,** 757-762. **190**

The blood pyruvate response to intravenous glucose injection in the young lamb was similar to that of the rabbit; blood pyruvate was increased, but returned to normal by the end of 90 min. The adult sheep, however, responded differently in that the pyruvate level, like that of blood sugar, remained elevated 90 min. after injection. It is suggested that the reaction of an adult sheep to glucose injection is comparable to that of a diabetic non-ruminant.—R. L. REID.

WRIGHT, D. E. (1955). **Fat in liver and kidneys of pregnant sheep at different levels of nutrition and during starvation.**—*Brit. J. Nutr.* **9,** 279-286. [Author's summary modified.] **191**

W. examined histologically samples of liver and kidney from the 44 pregnant ewes used by Ferguson [*V.B.* **25,** 1745] in a chemical study of changes in the liver fat. In general, the results from histological examination paralleled the findings of Ferguson; on a high-plane diet, liver fat was not greatly increased except when starvation was imposed. The degree of fatty infiltration in the liver was greater in the animals on a low-plane diet and particularly in those that were starved. A study of kidney sections showed that, though fat was not so obvious as in the liver sections, fat deposition was comparable group for group with that of the liver. W. discussed the significance and possible relation of these observations to choline deficiency in the diet.

WHITEHAIR, C. K. & GALLUP, W. D. (1955). **A study of winter disorders in cows and ewes fed low-quality roughage.**—*Tech. Bull. Okla. agric. Exp. Sta.* No. T-53. pp. 31. **192**

Field studies indicated that losses in pregnant beef cows during late winter and early spring were chiefly due to protein deficiency. Experiments with ewes fed low quality hay supplemented by various concentrates, minerals and vitamins indicated also that poor reproduction-lactation performance was associated with protein deficiency.

—C. C. BANNATYNE.

DONOVAN, G. A., JOHNSON, E. L., BALLOUN, S. L. & PHILLIPS, R. E. (1955). **The long range effect of low level methionine supplementation in growing turkey rations.**—*Poult. Sci.* **34,** 251-256. **193**

Studies were conducted with 710 turkeys over a 24-week period to determine the value of supplementing rations with 0.025 and 0.05% levels of synthetic DL-methionine. The birds were confined, both all-mash and free-choice grain and mash feeding methods being investigated. Under all-mash feeding the body wt. of males showed a favourable response to both levels of supplement, females only showing response at the higher level. Under free-choice feeding the birds showed no or slight response. This difference in response under the two methods of feeding was attributed to the fact that the birds fed "free-choice" consumed a greater proportion of mash to grain, thus obtaining ample natural methionine.—D. POYNTER.

RICE, C. E., DUHAMEL, L. & GIRARD, A. (1955). **The effect of prolonged injection of ethionine on rabbits and guinea pigs fed a high cholesterol diet. I. On complement titre.**—*Canad. J. comp. Med.* **19,** 167-171. **194**

Groups of rabbits and g. pigs were repeatedly injected with ethionine and concurrently fed either a standard pellet diet or the same diet supplemented with cholesterol and cotton-seed oil. Complement titres were tested in the animals and compared with the titres of control animals fed the same diets but not receiving ethionine. Ethionine was responsible for a decline in complement titre in both species regardless of diet, but the decline was less marked in rabbits on high

cholesterol. High intake of cholesterol in the control rabbits resulted in increased complement titres, but such an effect was not found in g. pigs.—A. GREIG.

BEGOVIĆ, S. & MAGLAJLIĆ, E. (1955). Nachweis von Acetylcholin in der Stutenmilch und dessen Einfluss auf die Darmmotilität. **[Acetylcholine content of mares' milk and its effect on intestinal motility.]**—*Wien. tierärztl. Mschr.* **42,** 68-73. [English, French and Italian summaries.] **195**

Fresh mares' milk was biologically assayed and showed an acetylcholine content of 1μg. per ml., *i.e.*, ten times that of cows' milk. When introduced into the small intestine of the dog prepared *in situ*, an equivalent concentration of acetylcholine produced marked peristalsis. The high cholinesterase activity in the serum and extracellular spaces of the horse makes that animal much less susceptible than, *e.g.* cattle to the toxic effects of ingested acetylcholine.—G. P. MARSHALL.

KRÜGER, W. (1954). Untersuchungen über die Lecksucht bei Rindern in Schleswig-Holstein. **[Investigation into pica in cattle in Schleswig-Holstein, Germany.]** — *Dtsch. tierärztl. Wschr.* **61,** 441-445. **196**

Pica occurs in cattle grazing on bleached soils which are found in certain well defined areas of north Schleswig-Holstein. Blood analysis showed that haemoglobin and r.b.c. values declined by 20 to 35% in affected animals during the winter months. A similar picture was found in calves born during the summer and autumn. Cobalt therapy relieves the condition.—J. A. NICHOLSON.

ALMASY, F. (1954). Kobaltmangel und Vit.-B_{12}-Versorgung beim Rind und Schaf. **[Cobalt deficiency in relation to vitamin B_{12} intake in cattle and sheep.]**—*Schweiz. Arch. Tierheilk.* **96,** 630-635. [English. French and Italian summaries.] **197**

A consideration of cases of so-called cobalt deficiency suggests that there is in fact a lack of vitamin B_{12}, rather than of cobalt. This is probably due to a deficiency in the synthesis of the vitamin by the ruminal organisms. Definite vitamin B_{12} deficiencies have not been recognized in Switzerland.

—J. A. NICHOLSON.

BARBER, R. S., BRAUDE, R. & MITCHELL, K. G. (1955). **Studies on anaemia in pigs. 2.—Comparison of haemoglobin levels in blood of pigs reared indoors and outdoors on pasture.**—*Vet. Rec.* **67,** 543-546. **198**

Haemoglobin levels, growth rate and food consumption were recorded in 3 litters of pigs farrowed and maintained indoors, and in 4 litters at pasture. The indoor pigs received iron daily from the 4th to the 11th day of life; this apparently maintained a high level of Hb until 2 weeks of age, but thereafter the level declined. The Hb in the outdoor pigs caught up with the others before 3 weeks of age and stayed at a high level. Thereafter the outdoor pigs ate more food and grew faster, weighing an average of 7 lb, more at 8 weeks of age.

—JOHN SEAMER.

HEAD, M. J. & ROOK, J. A. F. (1955). **Hypomagnesaemia in dairy cattle and its possible relationship to ruminal ammonia production.** —*Nature, Lond.* **176,** 262-263. **199**

The authors suggest that hypomagnesaemia arises from an inadequate absorption of Mg probably associated with high ruminal ammonia production, evidence of which is presented.—D. POYNTER.

MARSH, H. & SWINGLE, K. F. (1955). **Blood phosphorus, calcium, and vitamin A in range sheep.**—*Amer. J. vet. Res.* **16,** 418-424. [Authors' summary modified.] **200**

The averages of 517 determinations of levels of phosphorus, calcium, and vitamin A in blood plasma of breeding ewes on range in the mountain area of Montana were as follows:— phosphorus, 4.3 mg./100 ml.; calcium, 9.2 mg./100 ml.; vitamin A, 29 g./100 ml. The samples were taken over a 4-year period, mostly between October and April. One set of samples taken in July showed a higher phosphorus level, namely 5.4 mg./100 ml. Ewes fed a protein concentrate during the period of pregnancy did not show values significantly different from those for ewes on range with no supplement.

HOEKSTRA, W. G. (1955). **Parakeratosis in swine.**—*Vet. Sci. News, Univ. Wis.* **9,** No. 2. pp. 1-3. **201**

H. describes the clinical symptoms of parakeratosis in pigs and experiments to confirm that zinc supplements will correct the condition. Details are given of a standard ration to which different supplements were added. Bone flour or calcium appeared to aggravate the condition. Addition of an aureomycin supplement did not affect the parakeratosis but increased weight gains. Zinc, 100 p.p.m. added to the food corrected the condition. The clinical surface wrinkling was attributed to the dehydration of the skin,

though dehydration of the exudate and stratum corneum was probably intended. Lacking details it is assumed that the rations were fed dry and that water was available *ad libitum*.—W. E. PARISH.

O'MOORE, L. B. (1955). **Tetany with fatal termination in ewes.**—*Irish vet. J.* **9,** 95-96. **202**

A description of an outbreak of tetany in a flock of Cheviot ewes, followed by an investigation of calcium and magnesium serum levels and discussion of the relative prophylactic merits of manurial treatment of pastures, direct Mg feeding and grazing on permanent rather than on ley pastures.
—G. P. MARSHALL.

FEASTER, J. P., HANSARD, S. L., MCCALL, J. T. & DAVIS, G. K. (1955). **Absorption, deposition and placental transfer of zinc^{65} in the rat.**—*Amer. J. Physiol.* **181,** 287-290. [Authors' summary modified.] **203**

Absorption of radioactive zinc from the gastro-intestinal tract of rats was poor. There was, however, relatively free movement of the element across the placenta to the foetus at all stages of gestation. In lactating rats, more than half of the absorbed Zn was transferred by way of the milk to the young during a period of 96 hours. Radioactive Zn concentration paralleled that of total Zn in maternal tissues, the highest conc. occurring in the kidney, followed in order by the liver, pancreas and femur. Transfer of radioactive Zn to the foetus paralleled that of total Zn. Foetal content of both forms of the element increased throughout the gestation period, reaching a peak at term.

I. ROSENBERGER, G. (1955). Die Erblindung der Jungrinder — eine A-Hypovitaminose. **[Blindness in young cattle caused by vitamin A deficiency.]**—*Dtsch. tierärztl. Wschr.* **62,** 121-126. **204**

II. COHRS, P. (1955). Zur Histopathologie der durch A-Hypovitaminose verursachten Blindheit des Rindes. **[Pathology of blindness in cattle caused by vitamin A deficiency.]**—*Ibid.* 126-128. **205**

I.—R. described a type of blindness occurring in young cattle and strictly confined in onset to the ages of 6-15 months. The cause was a marked carotene deficiency in the hay fed during the critical period.

II.—C. described the pathological changes in the eyes in this condition. Contrary to the findings of other authors in rats, where A-avitaminosis is characterized by degenerative changes in the retinal neuroepithelia, the common feature in cattle was a primary atrophy of the optic ganglial cells of the retina. Two cases also had papilloedema and only one had a circumscribed secondary atrophy of the neuroepithelial layer.—G. P. MARSHALL.

PILEGGI, V. J., DE LUCA, H. F. & STEENBOCK, H. (1955). **The role of vitamin D and intestinal phytase in the prevention of rickets in rats on cereal diets.**—*Arch. Biochem.* **58,** 194-204. **206**

The anti-rachitic action of vitamin D in rats on a cereal diet is due primarily to an improved utilization of inorganic phosphorus.
—R.M.

WORDEN, A. N., WATERHOUSE, C. E. & PARTINGTON, H. (1955). **The response of the dog to test doses of vitamin B_1 hydrochloride.**—*Vet. Rec.* **67,** 503-509. **207**

The authors studied the urinary excretion of vitamin B_1 in 3 dogs following the oral administration of doses of from 250–10,000 μg. of the vitamin. The increase in urinary excretion of vitamin B_1 which followed the administration of each dose lasted for 48 hours in most cases, but fluctuated from 24 hours to 96 hours. They concluded that assessment of the vitamin B_1 status of the body by measuring urinary output following oral administration of a large dose of the vitamin, was difficult to apply to dogs because it entailed an observation period of 48 hours and because of the relative difficulty of obtaining urine samples.—R.M.

NADEL, E. M., MULAY, A. S. & SASLAW, L. D. (1955). **On the failure of glycogen deposition in the livers of scorbutic guinea pigs.**—*Endocrinology.* **56,** 584-589. **208**

A defect in the ability to form liver glycogen from precursors is present in severely scorbutic g. pigs. This is not related to the loss in body wt. that occurs late in scurvy. Ascorbic acid may be a necessary factor influencing the metabolism of glucose or glucocorticosteroids or both.—D. POYNTER.

KOCH, J. H. (1955). **Cobalt chloride and the alpha-cells of the pancreas.** [Correspondence.]—*Nature, Lond.* **175,** 856-857. **209**

Studies of the relationship between the hyperglycaemia and the changes in the condition of the α-cells of the islets of Langerhans produced in rabbits by parenteral administra-

tion of cobalt chloride, inorganic metal complexes and $CoCl_2$-amino-acid mixtures suggested that these are two independent phenomena.—G. P. MARSHALL.

STEYN, D. G., KIESER, J., ODENDAAL, W. A., MALHERBE, H., SNYMAN, H. W., SUNKEL, W., NAUDE, C. P., KLINTWORTH, H. & FISHER, E. (1955). **Endemic goitre in the Union of South Africa and some neighbouring territories.** pp. 90 Pretoria, Union of South Africa: Department of Nutrition. **210**

After reviewing the different aspects of goitre and the literature on all the known factors which may induce enlargement of the thyroid gland in man and animals and considering their respective importance, this report describes the results of the work of the South African Goitre Research Committee on the endemic goitre problem in South Africa and neighbouring territories. Endemic goitre due to a primary iodine deficiency in the water and soil and most probably in the vegetable food occurs in a belt running from the Northern Transvaal, through Swaziland and Basutoland, down to the Western Cape province, in the central Transvaal, and in the entire Caprivi strip and Northern South West Africa. Goitre due to excessive quantities of fluorine in subterranean drinking water in spite of a supersufficiency of iodine occurs in the North Western Cape province. Goitre was not evident in animals in the human endemic goitre areas investigated, although it has been reported in new-born calves in a district of the Cape province. Preliminary evidence suggests that the grasses eaten by stock in the endemic goitre areas contain a very much larger quantity of iodine than do the vegetables, cereals, and fruit grown in the same areas.—A. ACKROYD.

STEYN, D. G. & SUNKEL, W. (1954). **Goitre in animals in the Union of South Africa.**—*J. S. Afr. vet. med. Ass.* **25,** No. 4. pp. 9-18. **211**

Congenital goitre of calves appeared on a farm in Cape Province. The area was not goitrogenic for human beings and the disease had not previously occurred in animals. Investigations showed its association with the grazing of pregnant cattle on a particular pasture, recently added to the farm. A hereditary factor may also have been involved. —P. H. HERBERT.

HANCOCK, J., BRUMBY, P. & TURNER, C. W. (1955). **The influence of l-thyroxin upon the growth and subsequent production of identical-twin dairy heifers.**—*N. Z. J. Sci. Tech.* Sect. A. **36,** 571-585. **212**

A hyperthyroid state was induced in 6 identical-twin heifers for approx. the first 6 months of their first pregnancy by the daily injection of l-thyroxin at 0.4 mg./100 lb. body wt. A depressed rate of gain of body condition and accelerated rate of skeletal growth occurred. The feed intake of the hyperthyroid animals was greater than that of the controls, whereas their grazing time was less and the time spent in chewing the cud increased. Subsequent milk and butter-fat production of the majority of animals subjected to l-thyroxin was depressed.—D. POYNTER.

MCCLYMONT, G. L. (1955). **Note on detection of a high level of blood oestrogen in a case of pregnancy toxaemia.**—*Aust. vet. J.* **31,** 150-151. [Author's summary modified.] **213**

The occurence is reported of an easily detectable level of sex hormones, presumably oestrogens, in the blood of a ewe affected with pregnancy toxaemia.

LARSEN, P. L. (1955). Lidt om nervøs acetonaemi hos kvaeget m.m. [**Treatment of nervous acetonaemia in cows with adrenocorticotrophic hormone (A.C.T.H.)**].—*Medlemsbl. danske Dyrlaegeforen.* **38,** 297-299. [In Danish]. **214**

Of 7 cases of acetonaemia, 8-60 days after calving, 5 recovered clinically 1-3 days after treatment with A.C.T.H. and two died. In both the latter cases the blood calcium/magnesium ratio was abnormal. The best results were obtained with combined therapy with calcium, glucose and A.C.T.H. In four cases of milk fever which had relapsed several times no further relapses occurred after treatment with A.C.T.H.—F.E.W.

DISEASES, GENERAL

HAWKINS, R. H. (1955). **A brief comment on the chief infective diseases of sheep in the Isle of Man.**—*Manx J. agric.* **9,** 17, 19 & 22-23. **215**

A brief review, for the benefit of the farmer, of certain anaerobic infections, foot rot, "orf" (contagious pustular dermatitis) and joint-ill.—C. C. BANNATYNE.

NIGGLI, H. B. (1955). Mundwinkelkrankheit. [**A disease of the corner of the mouth of horses in Honduras.**]—*Schweiz. Arch. Tier-*

heilk. **97,** 42-44. [English, French and Italian summaries.] **216**

A note on a condition of unknown aetiology which has been found to affect 1—2% of otherwise healthy horses in Honduras. It progresses slowly, the corners of the mouth becoming elongated by as much as 6 cm. The only lesions found were a few minute superficial dry cuts on the mucous membrane.—W. G. SILLER.

PAMUKCU, A. M. (1955). **Investigations on the pathology of enzootic bovine haematuria in Turkey.**—*Zbl. VetMed.* **2,** 409-429. [In English. French, German and Spanish summaries.] **217**

A commission investigated bovine haematuria in northern Turkey: 93 field cases and 266 bladders from abattoirs were examined. The incidence is below 10%. Bacteriological, parasitological, protozoal and haematological examinations did not establish a common factor. All stages of lesions were found in the bladder. Of 50 tumours examined 37 were of epithelial origin, more malignant than benign, and the remainder mesoblastic. The histopathology is described and illustrated. The only common factor to all cases was the presence of bracken, but no cases at all occurred on some farms on which bracken grew.—J. SEAMER.

KUBIN, G. (1955). Funktionsstörungen der Vormägen des Rindes infolge Schädigung des N. vagus. **[Functional disturbance of the bovine stomach caused by damage to the vagus nerve.]** — *Wien. tierärztl. Mschr.* **42,** 170-176. [English, French and Italian summaries.] **218**

Most of the frequently occurring digestive disorders of cattle are due to damage to the vagus nerve following such conditions as traumatic peritonitis, pleurisy, TB. and lymphadenosis of the mediastinal lymph nodes. Four clinically distinct entities are recognized according to the localization of the nerve lesions. All involve a primary stenosis of the pylorus or the reticulo-omasal orifice.—W. G. SILLER.

WERDA, K. (1955). Próby stosowania odczynu Sulkowicza w rozpoznaniu urazowego zapalenia czepca u bydła. **[Adaptation of the test described by Sulkowitch for the diagnosis of foreign bodies in cattle.]**—*Méd. vét., Varsovie.* **11,** 42-43. **219**

The Sulkowitch test for calcium [*V.B.* **20,** 1024] was carried out on the urine of 10 cattle affected with the foreign body syndrome: in 8 cases the diagnosis was confirmed at slaughter; the remaining two animals were removed by the owners. A low calcium content in the urine is stated to be diagnostic of traumatic pericarditis-gastritis due to the presence of a foreign body.—J. R. MITCHELL.

ANON. (1955). **Report on Purdue Conference on Mucosal Disease.**—*Iowa St. Coll. Vet.* **17,** 153 & 165-166. **220**

The report embodied recommendations for the thorough investigation of a number of obscure cattle diseases which have been appearing in various parts of the U.S.A. since 1946 and which are characterized by rise of body temperature, respiratory symptoms, ulceration of the buccal and intestinal mucous membranes, and diarrhoea.—T.E.G.R.

MILLER, N. J. (1955). **Infectious necrotic rhinotracheitis of cattle.** — *J. Amer. vet. med. Ass.* 463-467. [Author's conclusions modified.] **221**

A preliminary report of the clin. aspects of an acute disease of the respiratory tract of cattle which appeared in Colorado in 1950. It is characterized by high temperature and its ability to produce either localized or generalized areas of acute hyperaemia of the mucosa of the respiratory tract. These areas are affected for the most part in a few hours with caseation necrosis. The cause is undetermined but is presumed to be a virus. Attempts to isolate *Fusiformis necrophorus,* by direct smear, from typical lesions were unsuccessful. No specific therapy has been found. However, certain antibiotics seem to be helpful in the early stages. The sulphonamides have been found to have limited therapeutic value. There is a wide variance in morbidity and mortality.

ANDERSEN, A. C. (1955). **The pathogenesis of telangiectasis in the bovine liver. I. The incidence of telangiectasis.**—*Amer. J. vet. Res.* **16,** 27-34. **222**

The incidence of telangiectasis in the liver of slaughter cattle was discussed. It was considered that feeding conditions, rather than age and sex. were correlated with the condition.—T.E.G.R.

GWATKIN, R. & DZENIS, L. (1955). **Rhinitis of swine. X. Further experiments with laboratory animals.**—*Canad. J. comp. Med.* **19,** 139-143. **223**

Atrophic rhinitis was produced in 6 of 7 rabbits inoculated intranasally with a suspension of nasal material from an experimentally infected pig, and *Pasteurella septica* was ob-

tained on culture from all 7 rabbits. Rats, g. pigs and white mice inoculated with the same material remained healthy. Hyaluronidase did not change the results. A pure culture of *Past. septica* produced rhinitis in one rabbit, but the re-isolated organism did not reproduce the disease in other rabbits. Atrophic rhinitis was passaged 14 times using nasal scrapings as inocula, and *Past. septica* was recovered frequently from the turbinates of these animals. The organism recovered in culture from the 14th passage reproduced rhinitis in rabbits.
—A. GREIG.

KRAUS, H. (1954). Beitrag zur Problematik des sogenannten Herztodes der Schweine. **[Fatal syncope in swine.]**—*Mh. VetMed.* **9,** 80-85. **224**

Fatal syncope in pigs is considered to be caused by an activation of the sympathetic nervous system due to inhibition of the parasympathetic system by an increase in cholinesterase. This occurs as a result of excessive feeding of potatoes with too little protein. The condition can be prevented by administration of acetylcholine.—H. BEHRENS.

VERWER, M. A. J. (1954). Over punctie en onderzoek van de liquor cerebrospinalis bij de gezonde en de zieke hond. **[Spinal puncture and examination of cerebrospinal fluid in healthy and sick dogs.]**—*Tijdschr. Diergeneesk.* **79,** 891-909. [English, French and German summaries.] **225**

Cerebrospinal fluid was collected from 174 dogs by puncture in the atlanto-occipital region, and morphological, physical and chemical examination of these specimens was performed. The volume normally obtained was approx. 6·5 ml. The only cells found in normal c.s.f. are the so-called small c.s.f. lymphocytes.
—C. A. VAN DORSSEN.

STRANDE, A., SOMMERS, S. C. & PETRAK, M. (1954). **Regional enterocolitis in Cocker Spaniel dogs.**—*Arch. Path.* **57,** 357-362. [Authors' summary modified.] **226**

An account of regional entercolitis in 2 dogs. Grossly and microscopically the disease was similar to regional ileitis in human beings, and to terminal ileitis as described in pigs [*V.B.* **23**, 3159].

BODINGBAUER, J. (1955). Zahnkaries beim Hund. **[Dental caries in dogs.]**—*Wien. tierärztl. Mschr.* **42,** 177-190. [English, French and Italian summaries.] **227**

An account of studies on 2,113 dogs, illustrated by photographs, X-ray pictures and photomicrographs, showing that true dental caries exists in dogs and that it is comparable to caries in man, in that it represents a destructive process without repair affecting all three dental layers and progressing from the surface inwards. Occlusion caries was found to be the most common with an incidence of 5.77%. The upper molars were most commonly affected (36%).—W. G. SILLER.

LINDSAY, S. & CHAIKOFF, I. L. (1955). **Arteriosclerosis in the cat. Naturally occurring lesions in the aorta and the coronary arteries.**—*Arch. Path.* **60,** 29-38. **228**

Arteriosclerosis was found in 8 of 36 cats. The early lesion consisted of degeneration and regeneration of elastic fibres associated with mucopolysaccharides. This material might persist, leading to plaque formation and fibrosis. Lipids were not present in early lesions.—J. SEAMER.

DELAPLANE, J. P., SMITH, H. A. & MOORE, R. W. (1955). **An unidentified agent causing a hepatitis in chickens.**—*Sthwest. Vet.* **8,** 356-361. **229**

A condition in poultry in which a hepatitis was the main pathological feature is described. An infectious agent was isolated using chick embryos. It was also infective for rabbits and mice.—D. LUKE.

RUST, J. H., TRUM, B. F., WILDING, J. L., SIMONS, C. S. & COMAR, C. L. (1954). **Lethal dose studies with burros and swine exposed to whole body cobalt-60 irradiation.** —*Radiology,* **62,** 569-574. **230**

The LD 50/30 (*i.e.,* the dosage which kills 50% of the subjects within 30 days) of whole body cobalt-60 gamma irradiation was estimated at 784r, with a 95% confidence interval of 753-847r in donkeys, and 618r, with a 95% confidence interval of 525-682r, in pigs.
—T.E.G.R.

BYRNES, V. A., BROWN, D. V. L., ROSE, H. W. & CIBIS, P. A. (1955). **Retinal burns—new hazard of the atomic bomb.**—*J. Amer. med. Ass.* **157,** 21-22. [Authors' summary slightly modified.] **231**

The energy released in the form of visible, infra-red, and long ultra-violet light rays by an atomic bomb detonation is capable of producing thermal burns involving the choroid and retina. The primary site of the lesion is the pigment layer of the retina and choroid, and, in general, the diam. of the

lesion depends on the distance from the fireball. The pupillary diam. at the time of detonation is very important; thus, the danger is greater at night. Pupillary and blink reflexes are too slow to prevent this lesion, but are of some value in eliminating the added energy arriving after the first 0.1 sec. The distances at which these burns may occur are much greater than those at which any other harmful effect of the atomic bomb occurs. This is true because of the focusing effect of the optical system of the eye.

See also absts. **524** (book, foreign animal diseases); **325** (symposium on chemical pathology of animal pigments).

POISONS AND POISONING

NIEĆ, L. & ZADURA, J. (1955). Zatrucia arsenem u krów. [**Arsenic poisoning in cattle.**]—*Méd. vét., Varsovie.* **11,** 484-486. **232**

An outbreak of arsenic poisoning among cows was traced to a consignment of bran carried loose in goods waggons, which, it was found, had previously carried chemicals containing arsenic. The waggons had not been cleaned before re-loading and the bran became contaminated. This had been distributed among a number of farms and fed to cows. Some animals died and some exhibited only symptoms of gastro-intestinal upset.

—M. GITTER.

MALHERBE, Y. L. (1955). **Malicious arsenic poisoning in fowls.**—*E. Afr. agric. J.* **21,** 20-21. [Author's summary modified.] **233**

Thirty out of 127 fowls died from arsenic poisoning, maliciously administered. P.M. examination was carried out on 13 of the birds; in 6 of them there were characteristic lesions in the gizzard. Arsenic was demonstrated in the intestinal contents and tissues.

MUSSILL, J. (1954). Beobachtungen bei Fabriksrauchschäden an Rindern. [**Effect of industrial vapours and smoke on cattle.**] *Wien. tierärztl. Mschr.* **41,** 569-583. [English, French and Italian summaries.] **234**

Discoloration of teeth, hypoplasia and other defects of dental enamel, typical for chronic fluorosis, were observed in 70 of 170 cattle, kept for 6-12 months on farms exposed to fumes from an aluminium works, and in 390 of 501 cattle which had been kept there for over 3 years. Exostoses on ribs and leg bones were present in 58 of the former and 231 of the latter group. One third of the affected animals were lame and there was considerable emaciation and reduction in milk yield.—E.G.

BETHLEM, M. L. B. & TAVEIRA, M. (1954). Uma perícia toxicológica de "dopping". [**Toxicological investigation of "doping" in a racehorse.**] —*Rev. Milit. Rem. Vet., Rio de J.* **14,** 39-45. **235**

Amphetamine and alkaline formates were identified in material from a horse which collapsed and died while racing.—R.M.

HOEKSTRA, W. G., DICKE, R. J. & PHILLIPS, P. H. (1955). **Further studies on the production of a hyperkeratosis in calves with topically applied base-oils for use in livestock sprays.**—*J. Dairy Sci.* **38,** 186-196. **236**

Of 11 different oily preparations investigated, 2 produced no detectable skin changes while the rest caused changes ranging from simple desquamation to a pronounced hyperkeratosis undistinguishable from chronic hyperkeratosis (X-disease) of cattle. Only the skin was affected and no systemic disturbances were manifested.—T.E.G.R.

COLLET, P. (1954). Intoxication de jeunes chiens par les raticides anticoagulants (antivitamines K.). [**Poisoning of young dogs by anticoagulant rodenticides.**]—*Bull. Soc. Sci. vét. Lyon.* **56,** 289-299. **237**

Two newly weaned puppies died from poisoning by a coumarol derivative which had been scattered, in powder form, for the destruction of rats. The only symptoms were those of severe internal haemorrhage. The bitch, although exposed to the same contamination, appeared to be unaffected, possibly because an insufficient dose of the poison had been ingested, or because of a possible greater resistance on the part of adult dogs.

—I. W. JENNINGS.

WAIBEL, P. E., POMEROY, B. S. & JOHNSON, E. L. (1955). [**Effect of arasan-treated corn on laying hens.**—*Science.* **121,** 401-402. **238**

When the production of abnormal eggs was investigated in a large hen population, the cause was traced to the maize in the feed, and in particular to tetramethylthiuram disulphide (TMTD), the active agent of a commercial fungicidal seed dressing.

Experimental feeds containing 10-50

p.p.m. of the fungicide caused a slight, and those containing 100—200 p.p.m. a heavy increase in the proportion of soft-shelled or otherwise abnormal eggs laid. This was confirmed by the results obtained with two field rations containing equivalent proportions of the fungicide.

The mode of action of TMTD in this respect was being investigated.

—G. P. MARSHALL.

BOKORI, J., KOVÁCS, F. & HARASZTI, E. (1955). Lovak egynyári szélfü- (*Mercurialis annua*) mérgezése. [*Mercurialis annua* **poisoning in horses.**]—*Mag. állator. Lapja.* **10,** 191-196. [English and Russian summaries. English summary modified.] **239**

The clin. symptoms of naturally-occurring *M. annua* poisoning in two horses were:— weakness, inappetence, fever, haemoglobinuria, haemoglobinaemia, impaired liver function and, in one case, enteritis. The condition was also reproduced experimentally in two horses by feeding the plant [quantity fed not stated]. The symptoms set up were urticaria, s/c oedema and haemoglobinaemia. The horses were killed and the P.M. findings in one were s/c oedema, jaundice and degeneration of the kidneys, liver and heart. The authors stated that the condition is not fatal and responds to symptomatic treatment. The toxic principle has not been identified.

—T.E.G.R.

ENDER, F. (1955). Undersøkelser over alveldsykens etiologi. **[Aetiology of photosensitization in lambs.]**—*Nord. VetMed.* **7,** 329-377. [In Norwegian. English and German summaries.] **240**

"Alveld" is a photosensitization in lambs, due to poisoning by *Narthecium ossifragum.* Saponins from the plant appear to cause the typical icterus, which is hepatogenic rather than haematogenic, but the photosensitivity occurs only when chlorophyll is present. The mechanism of the reactions is uncertain.—F. R. PAULSEN.

JORDANOV, S. (1955). **[Snake-bite in cattle.]** *Vet. Glasn.* **9,** 302-303. [In Serbian.] **241**

J. described the clin. picture of snake-bite in cattle and presented a case account in a cow of successful concentrated polyvalent snake serum therapy, combined with local, symptomatic treatment.—E.G.

HUANG, T. C., MARSHAK, R. R. & MCCAY, C. M. (1954). **Nitrophenide and other anticoccidial studies with dogs.**—*J. Amer. vet. med. Ass.* **124,** 212-214. **242**

Paralysis and incoordination occurred in dogs fed a meal which accidentally contained nitrophenide. A single dose of 37·5 mg. of the drug per kg. body wt. was sufficient to cause paralysis in dogs, and 50 mg. per kg. body wt. was lethal. Comparing the toxicity of nitrophenide with that of other coccidiostatic agents, the authors found that arsonic acid was toxic for dogs at the food concentrations used for fowls; arsanilic acid was less toxic.

—W. S. MARSHALL.

JORDAN, F. T. W. (1955). **Accidental nitrofurazone poisoning in baby chicks.**—*Vet. Rec.* **67,** 514-516. [Author's summary modified.] **243**

Of 450 day-old chicks accidentally given food containing 0·04-0·07% nitrofurazone for 3 days, 151 died and the survivors were retarded in growth. A characteristic symptom was hyper-excitability, with whirling in circles, ending in convulsions. No specific lesions were observed.

HASS, K. B. (1955). **Rauwolfia toxic for dogs.** —*N. Amer. Vet.* **36,** 658. **244**

H. drew attention to the species sensitivity of the dog to rauwolfia, and cited three references to accounts of the toxicity.

—A. SEAMAN.

ENGEL, R. W., LINKOUS, W. N. & BELL, W. B. (1955). **Effect of protein on the toxicity of hexachloronaphthalene.**—*J. Nutr.* **55,** 119-128. **245**

Administration of 3-4 mg. of hexachloronaphthalene, total dose, over a period of one or two weeks resulted in liver hypertrophy and the accumulation of liver fat in rats if the animals were fed a 9% casein diet. Increasing the casein to 18% or 27% at the expense of sucrose afforded significant protection against liver fat accumulation both in the presence and absence of highly chlorinated naphthalene.

—D. POYNTER.

See also absts. **316** (report, Australia); **326** (book, poisonous plants of India).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

DOZZA, G. (1955). La trasfusione di sangue e di plasma negli animali domestici. [**Blood and plasma transfusion in domestic animals.**] —*Vet. ital.* **6,** Suppl. No. 2, pp. 787-871. **246**

A general account of blood transfusion in domestic animals, including biological effects, mechanism of action, human and animal blood-groups, iso- and hetero-immunization, neonatal haemolytic disease, compatibility tests, techniques, contra-indications, preservation of blood, and the use of plasma and its substitutes.—F. R. PAULSEN.

MARTIN, L. E., BATES, C. M., BERESFORD, C. R., DONALDSON, J. D., MCDONALD, F. F., DUNLOP, D., SHEARD, P., LONDON, E. & TWIGG, G. D. **The pharmacology of an iron-dextran intramuscular haematinic.**—*Brit. J. Pharmacol.* **10,** 375-382. **247**

An account of the pharmacology of an Fe-dextran complex ("imferon" containing 5% wt./vol. of Fe) using saccharated Fe oxide as a basis of comparision. The product is well absorbed, has a low toxicity and is a satisfactory haematinic. Piglets with Fe deficiency anaemia utilized during the first 14 days after i/m inj. 93% of the Fe administered.—D. POYNTER.

NACHIMSON, H. I., BENSON, R. H., SZAFIR, J. J., TURNER, R. B., ALLEN, H. C., JR. & TALMAGE, R. V. (1954). **Comparative study of effects of phenothiazine and iodine on thyroid uptake of I^{131}.**—*Proc. Soc. exp. Biol., N.Y.* **87,** 157-162. **248**

It has been demonstrated previously [*V.B.* **24,** 1248 & 3892] that the administration of commercial quality phenothiazine inhibited the uptake of radio-active iodine by the thyroid gland. The phenothiazine used contained a small amount of free iodine, as a result of organic dissociation, but the inhibiting effect of the drug on the thyroid gland was not due solely to this.—R.M.

BUNN, C. E. & SCHEIDY, S. F. (1955). **Enzymes as adjuncts in therapy.** — *Vet. Med.* **50,** 153-158. **249**

The authors described the fibrinolytic enzymes streptokinase, streptodornase, trypsin and pancreatic dornase and discussed their use as adjuncts in the treatment of haematomata and local infections.—G. P. MARSHALL.

BARTTER, F. C. (1955). **New adrenal cortical steroid.**—*Science.* **121,** 581-583. **250**

A discussion of 33 papers dealing with the isolation, properties, experimental effects and early clin. uses in man of aldosterone, an adrenal cortical steroid consisting of 18-aldocorticosterone and its 11-hemiacetal.

—G. P. MARSHALL.

CLOVER, R. H. (1955.) **Some experiences of thiopentone sodium as an anaesthetic in the pig.**—*Vet. Rec.* **67,** 354-355. **251**

Using a dosage of $\frac{1}{5}$gr. per lb. body wt., full surgical anaesthesia was obtained with a 5% soln. of thiopentone sodium by i/v injection for the repair of umbilical rupture in a gilt and of prolapse of the colon and rectum in a 9-week-old gilt and in two other pigs. Only light anaesthesia was obtained for repair of this condition in another young gilt. Using the same dosage, this anaesthetic was also satisfactory for restraining a fractious sow when farrowing. Given i/p in two other cases, its action was irregular and unreliable.

—A. ACKROYD.

See also absts. **2** (neomycin in mastitis); **13-14** (isonicotinic acid hydrazide); **26** (streptomycin in fowl coryza); **51** (V. fetus infection); **55** (foot rot); **57** (sterility); **69** (trypanosomiasis); **93** (equine infections anaemia); **107** (porcine virus pneumonia); **110** (distemper); **136** (terramycin and magnamycin in "Salmon poisoning"); **146-147** (parasiticides); **156-157** & **168-169** (anthelmintics); **162** (emetine hydrochloride); **185-189** & **193** (feed supplements); **302** (danger of use of antibiotics in metritis); **303** (metritis); **314** (report, Medical Research Council).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

WITTKE, G. (1955). Messungen der Ventilationsgrösse einiger Rinder. [**Measurement of the volumes of air respired by cattle.**]—*Zbl. VetMed.* **2,** 165-172. [English, French and Spanish summaries.] **252**

Measured by face-masks, Douglas bags and a gas-meter, the air volume respired by medium-sized cattle was found to be 86 ± 10l. per min. or $3{\cdot}5 \pm 0{\cdot}2$l. per respiration. W. discussed the role of respiration in body temp. regulation and compared results with earlier data.—F. R. PAULSEN.

SCHMIDT-NIELSEN, K., SCHMIDT-NIELSEN, B., HOUPT, T. R. & JARUM, S. A. (1955). **Body temperature of the camel.** — *Fed. Proc.* **14,**

133. [Only abst. given Abst. from abst.] **253**

Diurnal variations in the deep rectal temp. of the normal camel may exceed 6°C. The temp. may reach a minimum of 34·2°C. in the morning with an afternoon maximum of 40·7°C. These variations are of great significance in the water economy of the camel in a hot desert environment, for by permitting the body temp. to increase up to a certain point, the necessity for sweating, with consequent loss of water, is avoided. On a hot day the body temp. increases steadily until 40·6°C. is reached: further increase is prevented by sweating. Camels with free access to water have diurnal temp. variations of about 2°C. Similar variation is observed during the winter.

SMITH, F. E. (1955). **Indices of heat stress. A statistical comparison of effective temperature and an index based on sweat loss.**—*Mem. Med. Res. Coun.* No. 29. pp. 52. London: H.M. Stat. Off. 2s. **254**

Statistical comparison of the results obtained from correlating observed 4-hour sweat rates and rectal temperature with Yagloglou's scales of effective temp. as an index of heat stress and with McArdle's scale based on predicted 4-hour sweat rates showed that although the rate at which a man sweats in a hot environment can be predicted fairly accurately from the former provided the rate at which a man works is known, the prediction is less accurate than that made from the latter. Possible error in predicting individual sweat rates is large in both cases. The effective temp. scales are subject to certain limitations, but if these can be eliminated by suitable adjustments, the accuracy of predicting sweat rates should be improved.—A. ACKROYD.

KIKKAWA, H., OGITA, Z. & FUJITO, S. (1955). **Nature of pigments derived from tyrosine and tryptophan in animals.**—*Science.* **121,** 43-47. **255**

In eyes and eggs of insects, fish scales, feathers, and hairs, white colour is associated with predominance of nickel, yellow with titanium, red with molybdenum, blackish colours with copper, cobalt and iron. The metal is probably in a prosthetic group of an enzyme involved in pigment formation, and controlled by a gene.—F. R. PAULSEN.

BOLLIGER, A. & GROSS, R. (1954). **Non-keratins of avian and mammalian skin flakes.**—*Aust. J. exp. Biol. med. Sci.* **32,** 747-756. [Abst. from authors' summary.] **256**

A simple method for the collection of cast-off stratum corneum (skin flakes) is described. The tissue was examined in birds and mammals for its content of non-keratins, *i.e.,* water-soluble organic compounds. All of the non-keratinous compounds previously identified in keratinous appendages were found in skin flakes. Total non-protein nitrogen, ammonia, urea, uric acid, amino-acids before and after hydrolysis, reducing substances before and after hydrolysis, pentose and desoxyribose were determined quantitatively. The comparative biochemistry of skin flakes of birds and mammals, and of skin flakes and keratinous appendages is discussed.

ANDERSON, J. W. (1954). **The production of ultrasonic sounds by laboratory rats and other mammals.**—*Science.* **119,** 808-809. **257**

An account of some observations on high frequency sounds produced by laboratory rats. —T.E.G.R.

SZCZUDŁOWSKA, M. (1955). Oznaczanie ciśnienia śródocznego u zwierzat. **[Determination of intraocular pressure in animals.]** — *Méd. vét., Varsovie.* **11,** 347-348. [English and Russian summaries.] **258**

Regulation of intraocular pressure is controlled by a nervous reflex connected with subcortical brain centres. In the author's experience it can be measured in all animals by a modified use of a sphygmometer. —M. GITTER.

AFONSKY, D. (1955). **Blood picture in normal dogs.**—*Amer. J. Physiol.* **180,** 456-462. **259**

Repeated blood examinations on 30 dogs failed to reveal a "normal" picture. The following ranges were found :— R.b.c. 4·4-9 millions, haemoglobin 10·8-22 g. haematocrit 43-57·5%. The author examined the sources of these variations and concluded that the interpretation of canine blood examinations requires considerable care.—J. SEAMER.

MOBERG, R. (1955). **The white blood picture in sexually mature female cattle with special reference to sexual conditions. A clinical and experimental study.**—*Thesis, Stockholm.* pp. 65. [In English.] **260**

Beginning with a review of the literature M. proceeds to a study of methods. Examining healthy animals, free from TB. and from brucellosis, he found that the total w.b.c. count fell with increasing age, but the eosinophile count increased. No significant diurnal varia-

tion occurred. During oestrus the neutrophile count increased, but in heifers a concurrent drop in lymphocytes prevented an increased total count. The eosinophile count fell during oestrus. In early pregnancy neutrophiles, lymphocytes and eosinophiles increased slowly, decreasing later. The neutrophiles again increased in the last two months. At parturition the picture was variable, but a sharp increase in neutrophiles and a decrease in eosinophiles was characteristic. The effect of various oestrogens on w.b.c. counts of 3 ovariectomized heifers is also recorded.

—JOHN SEAMER.

FORSIUS, P. I. & HAIKONEN, M. (1955). Iakttagelser rörande fårplasmats binjurebarkhormoner. **[Adrenal cortical hormones in sheep plasma.]**—*Nord. VetMed.* **7,** 154-156. [In Swedish. English and German summaries.] **261**

The plasma fraction of the venous blood of 10 sheep was found to contain 17-hydroxycorticosteroids in levels ranging from 0-4·5 μg.%. In one sheep in which the level was 1·5 μg.% it rose to 4·2 μg.% four hours after an i/m injection of 25 i.u. of adrenocorticotrophic hormone. The corresponding levels in human plasma from 6 subjects were 2-22 μg.%. In sheep plasma the steroids appear to be free and not as glucuronates.—F. R. PAULSEN.

SPÖRRI, H. (1954). Untersuchungen über die Systolen- und Diastolendauer des Herzens bei den verschiedenen Haustierarten und ihre Bedeutung für die Klinik und Beurteilungslehre. **[The duration of systole and diastole of the heart in domestic animals and its clinical significance and interpretation.]**—*Schweiz. Arch. Tierheilk.* **96,** 593-604. [English, French and Italian summaries.] **262**

Records obtained with an electrophonocardiogram show that the systole/diastole relationship varies in different species, the general rule being that diastole is longest in those animals able to perform the greatest amount of muscular work. The relationship is altered in many diseases such as diseases of the liver and of the kidneys, anaemia, infectious disease, etc., but returns to normal on recovery. The systole/diastole relation should be taken into consideration with every E.C.G. analysis.—J. A. NICHOLSON.

BOWSHER, D. (1954). **A comparative study of the azygos venous system in man, monkey, dog, cat, rat and rabbit.**—*J. Anat., Lond.* **88,** 400-406. **263**

The literature is briefly reviewed. The method of outlining the azygos systems is described and differences noted in cross-connexions, between Primates and Carnivora. It is emphasized that the azygos system forms the main link between superior caval and internal vertebral veins and also controls c.s.f. pressure.—B. M. KING.

DAWES, G. S., MOTT, J. C. & WIDDICOMBE, J. G. (1955). **Closure of the foramen ovale in newborn lambs.**— *J. Physiol.* **128,** 384-395. **264**

In a study of the mechanism of the closure of the foramen ovale, venous pressures of mature foetal lambs and of new-born lambs were measured; the effects produced on these pressures by occlusion of the umbilical cord, by occlusion of the ductus arteriosus and by ventilation of the lungs were recorded. Anatomical closure of the foramen ovale appeared to begin towards the end of the first week after birth.—T.E.G.R.

LINZELL, J. L. & MOUNT, L. E. (1955). **Variations in the direction of venous blood-flow in the mammary region of the sheep and goat.** [Correspondence.] — *Nature, Lond.* **176,** 37-38. **265**

By inspection of the valves in the veins draining the udder of the sheep and goat, and by watching blood flow, the authors determined that in the virgin animal drainage from the superficial epigastric vein ("milk vein") is by way of the external pudic vein. In lactation the milk veins dilate so that their valves cease to function and the blood flows in the reverse direction.—JOHN SEAMER.

ROSATI, P. (1955). Caratteristiche morfologiche e strutturali dei vasi sanguigni dello scroto—Ricerche in *Equus caballus*. **[Blood vessels of the scrotum of the horse.]**—*Clin. vet., Milano.* **78,** 97-103. [English summary.] **266**

In the scrotum of the horse there are helicoid arteries similar to those in the cavernous tissue in the penis and those in the ovary. There are frequent anastomoses with veins.

—F. R. PAULSEN.

WANG, S. C. & CHINN, H. I. (1954). **Experimental motion sickness in dogs. Functional importance of chemoceptive emetic trigger zone.**—*Amer. J. Physiol.* **178,** 111-116. **267**

An emetic trigger zone is important in motion sickness in dogs, there being aetiological factors besides vestibular stimulation.

There are possible alternative mechanisms for manifestation of vomiting in absence of the chemoceptive emetic trigger zone.

—F. R. PAULSEN.

DOBSON, M. J. (1955). **A histological study of the structure and organization of the rumen epithelium of sheep.**—*J. Physiol.* **128,** No. 2, p. 25 P of Proceedings. [Only abst. given. Abst. from abst.] **268**

The epithelium is stratified squamous, non-glandular with highly vascular papillae. The basal cells of the malpighian layer are columnar with numerous mitochondria, suggesting a part in the active transport of sodium from rumen to blood.—A. SEAMAN.

DZIUK, H. E. & SELLERS, A. F. (1955). **Physiological studies of the vagal nerve supply to the bovine stomach. I. Comparison of responses in milk-fed and roughage-fed calves, using a chronic intrathoracic vagal electrode technique.**—*Amer. J. vet. Res.* **16,** 411-417. [Authors' summary slightly modified.] **269**

Thoracotomy was performed on 17 calves and permanent intrathoracic electrodes applied to the dorsal and ventral vagal nerve trunks. Spontaneous and electrically stimulated rumen motility patterns, in unanesthetized animals, were studied by fluoroscopy and by recording the intra-ruminal pressure. Spontaneous and stimulated gastric motility patterns for milk-fed and roughage-fed calves were characteristic for each group. Spontaneous motility of the rumen of the roughage-fed calves was more regular and contractions were stronger than in the milk-fed calves. Response of the rumens of the roughage-fed calves to vagal stimulation was more marked than that of the milk-fed calves.

Examination of histological sections of vagal nerve trunks of the calves indicated that the electrodes were not markedly irritating to tissue and that the electrodes did not alter normal nerve structure.

GRAHAM, M. A. (1954). **Sex chromatin in cell nuclei of the cat from the early embryo to maturity.** —*Anat. Rec.* **119,** 469-491. [Author's summary slightly modified.] **270**

The morphology of nuclei in various tissues of the cat was studied from the early embryo to maturity. The nuclei of females contained a mass of sex chromatin which was seldom seen in the nuclei of males. Although in the youngest embryos examined (19 days and 24 days) sexual differentiation of the gonads had not occurred, it was assumed that embryos with nuclei containing sex chromatin were female, and that embryos in which the sex chromatin was inconspicuous were male. The sex difference in nuclear morphology is therefore present from early embryonic development, throughout intra-uterine life, and into maturity.

DOHLMAN, C. -H. & BALAZS, E. A. (1955). **Chemical studies on Descemet's membrane of the bovine cornea.**—*Arch. Biochem.* **57,** 445-457. [Authors' summary copied *verbatim.*] **271**

Chemical analysis of bovine Descemet's membrane indicates that the bulk of the organic material is collagen. However, the morphological appearance and the solubility of this tissue is different from that of any other known mammalian collagenous tissue. The carbohydrates differ both qualitatively and quantitatively from those in the corneal stroma.

LITTLE, J. M. (1955). **Fractionation of the diuretic factor present in pregnant mare urine.**—*Amer. J. Physiol.* **180,** 173-178. **272**

Significant diuretic responses in dogs occurred with fractions obtained by extraction of the urine samples with chloroform or with petroleum ether, but not with diethyl ether or ethyl acetate. Extraction of activity with these solvents was not complete. Fractional precipitation with ammonium sulphate did not yield complete separation of activity, half saturation being more effective than complete saturation. With acetone in high concentration, the activity was precipitated completely, being greatest when the urine was refluxed for 30 min. at pH 1·0 and then subjected to fractional precipitation at pH 10·0 with a 63—75% conc. of acetone.—A. ACKROYD.

LOVELOCK, J. E. (1954). **Discussion on the survival of tissues at low temperatures. Biophysical aspects of the freezing and thawing of living cells.**—*Proc. R. Soc. Med.* **47,** 60-62. **273**

L. describes causes of cell death on freezing. Mammalian cell membranes are irreversibly damaged at -5°C. as a result of a rise in the salt concentration due to ice separation. Rapid freezing and thawing may prevent this. Glycerol etc. protects cells completely by salt buffering. Lowering the concentration of media helps.—B. M. KING.

See also abst. 329 (book, histology of avian digestive system).

REPRODUCTION AND REPRODUCTIVE DISORDERS

KNIGHT, R. P. (1955). **Ejaculation by electrical stimulation in the bull.** — *Aust. vet. J.* **31,** 131-132. **274**

In order to breed from a Hereford bull affected with bilateral osteo-arthritis of the hip, semen was collected by electrical stimulation. A transformer rheostat apparatus was used, operating from the mains power supply, and supplying current to two electodes (brass rings worn on rubber-gloved hands). Ejaculates were collected at intervals of 10—11 days and were diluted and frozen. Several cows were in calf after artificial insemination using this semen.—I. C. A. MARTIN.

COOPER, D. M. (1955). **A note on a collection apparatus for avian semen.**—*Vet. Rec.* **67,** 331-332. **275**

An apparatus for the collection of avian semen was devised, incorporating the following advantages: ease of collection, elimination of dust, faecal material and excess of urates from the sample and automatic measurement of the ejaculate.—T.E.G.R.

LAGERLÖF, N., PÅLSSON, E. & LUNDGREN, B. F. (1955). **Report to the Government of India on artificial insemination and sexual health control in cattle.** pp. 85. Rome: FAO Report No. 343. [Mimeographed.] **276**

The authors were appointed by FAO to advise and assist the Government of India in the development of the education of veterinarians in the field of animal gynaecology, with the aim of furthering their competence in carrying out rational preventive and curative measures against infertility and sterility in livestock and in dealing with the technical aspects, organization and operation of artificial insemination centres in key villages and the preservation of semen in the field.

This report describes briefly the position of veterinary education and research in the field of animal reproduction as they found it in 1953 and the existing problems of and obstacles to a rational breeding policy in cattle, and summarizes their recommendations for furthering a livestock improvement programme.—A. ACKROYD.

BISHOP, M. W. H. & HANCOCK, J. L. (1955). **The evaluation of bull semen.**—*Vet. Rec.* **67,** 363-367. Discussion pp. 367-372. **277**

At 4 artificial insemination centres 186 samples of semen from 76 bulls were subjected to 11 measurements before use; these were correlated with conception rate (by non-return at 3 months), and controlled by untested semen from the same bulls. Abnormal spermatozoa were classified into 3 groups, of which the first (endogenous) two amounted to less than 10% in these fertile bulls. Mean incidence of dead spermatozoa, resistance to temperature shock, and fructose concentration differed significantly between bulls, the last two very widely. Impedance change frequency (ICF) also differed, and proved a much more sensitive measure than motility, of variations in the physical activity of the semen. Metabolic tests such as methylene blue reduction, oxygen uptake, and fructolysis, tend to duplicate the information from the physical activity measurements—ICF. Their inter-relationships do not parallel concentration, hence individual spermatozoa vary in metabolic activity, and these qualitative differences between spermatozoa were confirmed from other angles. The incidence of abnormal spermatozoa was markedly independent of all other tests. Fertility increases with increasing ICF and resistance to temp. shock, and drops as the proportion of dead spermatozoa rises. There is a direct relationship between fructolysis and fertility, but variations in fertility do occur that are not related to the variations in the characteristics studied. In discussion on the paper, simple eosin staining was recommended to differentiate between live and dead spermatozoa, and the criticism was made that too few cows were inseminated from each ejaculate studied—deep freezing should enable this objection to be met in future. Absorptiometric methods of determining spermatozoan density had been proved very successful at two centres.

—F. L. M. DAWSON.

ROY, A. (1955). **Storage of boar and stallion spermatozoa in glycine-egg-yolk medium.** — *Vet. Rec.* **67,** 330. **278**

A comparative study was made of 3·2% sodium citrate-egg yolk and glycine-egg yolk in various concentrations (3, 4·5 and 6%) as diluents for boar semen. The latter gave better results, the optimum conc. being 4·5%.

—T.E.G.R.

HARROP, A. E. (1955). **Some observations on canine semen.** — *Vet. Rec.* **67,** 494-498. [Author's summary modified.] **279**

H. discussed the literature relating to the semen of the dog, and described the results of

his own investigations into the volume, density, motility, and pH of the semen, and the frequency and rate of ejaculation.

KARRAS, W. (1954). Spermastudien. 4. Mitteilung: Über ein am Mittelstück von Wiederkäuerspermien auftretendes unpaares Formelement, seine normale und pathologische Morphologie und biologische Aufgabe. [**Study of spermatozoa. IV. A unilateral structure within the middle piece of ruminant spermatozoa. Its normal and pathological morphology and its function.**] —*Mh. Tierheilk.* **6,** 295-312. **280**

Structures not previously described were observed directly in contact with the noduli posteriores but independent of them, and always placed laterally on one or other side. These were considered to excite into action the spiral filaments of the middle piece. No comparable structure was observed in spermatozoa from pigs, horses, dogs or g. pigs. The interpretation of spermatozoan morphology in relation to function is discussed at some length in the light of recent German work. Histological techniques are detailed.—F. L. M. DAWSON.

FLERCHINGER, F. H. & ERB, R. E. (1954). **Influence of treatment and fertility level of semen on distribution and non-return decline of repeat service intervals.**—*J. Dairy Sci.* **37,** 949-956. **281**

In cows that failed to conceive following artificial insemination, the average interval between insemination and the recurrence of oestrus was 35 days; in about 55% of the cows oestrus recurred between the 17th and 26th days after insemination. The addition of antibiotics or sulphonamides to the semen had no effect on this interval. The av. duration of the interval was slightly higher when bulls of high fertility were used for the initial insemination, compared with bulls of low fertility.
—R.M.

BRADEN, A. W. H. & AUSTIN, C. R. (1954). **The number of sperms about the eggs in mammals and its significance for normal fertilization.**—*Aust. J. biol. Sci.* **7,** 543-551. **282**

The number of spermatozoa at the site of fertilization was determined at various times after mating for normally mated rats, mice, and sheep, for rats mated during or after ovulation, and for rabbits mated at ovulation. In sheep the distribution of spermatozoa throughout the female genital tract was examined. The number of spermatozoa penetrating the eggs in rats mated under normal colony conditions was determined.

Data obtained illustrate the restrictive action of the female genital tract on the passage of spermatozoa and the relative importance of various parts of the tract in this restriction. In the sheep, the cervix, in particular, impedes the passage of spermatozoa. The restrictive action ensures good chance of spermatozoon-egg collision, but limits the ri[illegible] of disturbed fertilization by excess spermat[illegible]zoon penetration.

The rate of spermatozoon-egg collisions was estimated as one collision every 2 min. in rabbits and one every 10 min. in rats, but the collision frequency per unit surface area of egg was about the same in both species. In the rat the restrictive action of the female genital tract on the passage of spermatozoa was relaxed toward the end of oestrus.
—I. C. A. MARTIN.

DU MESNIL DU BUISSON, F. & DAUZIER, L. (1955). La remontée des spermatozoïdes du verrat dans le tractus génital de la truie en oestrus. [**Passage of spermatozoa in the genital tract of the sow during oestrus.**]—*C. R. Soc. Biol., Paris.* **149,** 76-79. **283**

During oestrus spermatozoa reach the base of the ampulla of the sow in 2 hours and the top of the fallopian tube in 5 hours. Duration of passage varies from 8 hours at the beginning of oestrus to 2 hours at the end.
—W. R. BETT.

GRANGER, W. (1955). **Influence of ram on oestrus in ewes.** [Correspondence.]—*Aust. vet. J.* **31,** 138-139. **284**

This letter supplements an earlier paper [*V.B.* **19,** 1664]. Ewes conceived as early as in the fifth week after lambing. The earliest conceptions occurred 8 or 9 days after the introduction of the ram. It is suggested that towards the end of lactation anoestrus the presence of the ram stimulated ovulation and, in the presence of the waning corpus luteum of pregnancy, oestrus accompanied ovulation.
—I. C. A. MARTIN.

CHANG, M. C. (1955). **Development of fertilizing capacity of rabbit spermatozoa in the uterus.** [Correspondence.]—*Nature, Lond.* **175,** 1036-1037. **285**

New direct evidence is provided to show that spermatozoa placed in the uterus require a definite period to develop their fertilizing capacity. Rabbit spermatozoa were obtained by centrifugation of saline uterine washings

taken from does at various times after mating, and inserted, though the flank, into the oviducts of does in which ovulation had been induced and which were killed a day later. No spermatozoon could fertilize which had sojourned only 4 hours *in utero* but after 6 hours, 38% were capable of fertilization, and the peak was reached at 77% after 16 hours.
—F. L. M. DAWSON.

RÖDEL, L. & KARL, H. (1955). Beitrag zum Mechanismus des Befruchtungsvorganges bei Säugetieren. **[Study of the mechanism of fertilization in mammals.]**—*Fortpflanzung.* **5,** 25-29. [English summary.] **286**

The concentration of ascorbic acid in the mucosa of an unstated number of cow oviducts was considered to exceed 100 mg.%. Experiments with a viscosimeter were carried out on the decomposition of hyaluronic acid with ascorbic acid. Ova recovered from oestrous bitches—number unstated—were observed following the addition of ascorbic acid and hydrogen peroxide to the medium; this mixture had the effect of dissolving the corona radiata in much the same way as occurs in the presence of spermatozoa.
—F. L. M. DAWSON.

HAWK, H. W., TYLER, W. J. & CASIDA, L. E. (1955). **Effect of sire and system of mating on estimated embryonic loss**—*J. Dairy Sci.* **38,** 420-427. [Authors' summary modified.] **287**

A total of 837 services were analysed to determine the effects of the bull and the system of mating on estimated embryonic mortality up to the 150th day of gestation. The bull had a highly significant effect on the rate of embryonic death in the cows to which he was bred. The death rate of outbred embryos was 19·8% up to the 150th day, compared with 22·3% for inbred embryos. The embryonic death rate in outbred dams was 19·2%, compared with 28·4% in inbred dams. The authors concluded that inbreeding tended to increase embryonic mortality.

ANDRES, J. (1954). Die Trächtigkeits-Untersuchung beim Rind und die tierärztliche Haftpflicht. **[Examination of cows for pregnancy, with reference to its legal aspects.]**—*Schweiz. Arch. Tierheilk.* **96,** 561-568. [English, French and Italian summaries.] **288**

Rectal examination for the diagnosis of pregnancy in the cow is described and illustrated. It is considered that the method is highly accurate and, provided the examination is performed carefully, there is little risk of causing an abortion.—J. A. NICHOLSON.

BINELLO, D. (1955). Contributo clinico sperimentale nella diagnosi precoce di gravidanza nella specie bovina mediante inoculazione di colostro. **[Pregnancy diagnosis in cows by injection of colostrum.]**—*Gazz. vet., Milano.* No. 1, pp. 1-8. **289**

Experiments were carried out with colostrum, injected into the caudal fold, for the early diagnosis of pregnancy. Results were inconclusive.—T.E.G.R.

HÖFLIGER, H. (1954). Der Nachweis stattgehabter Trächtigkeit bei Rind und Schwein. **[Proof of previous pregnancy in the cow and the sow.]**—*Schweiz. Arch. Tierheilk.* **96,** 635-641. [English, French and Italian summaries.] **290**

The changes by which proof of a previous pregnancy may be obtained are described for the cow and sow. Horn rings and the development of the udder are considered of significance in the cow, but the appearance of of the uterus, cervix, etc. and particularly the changes in the wall of the uterine artery provide final proof.—J. A. NICHOLSON.

ISHIDA, K. (1954). **Morphology and cytochemistry of ovaries of domestic animals.**—*Tohoku J. agric. Res.* **4,** 197-211. [In English.] **291**

The author examined the distribution of glycogen, ribonucleic acid, alkaline phosphatase and lipase in sections of ovaries from small numbers of cattle, sheep, goats, pigs, rabbits, g. pigs, rats and hamsters. He compared the histochemical picture of normal and atretic follicles and ova.—R.M.

TRIMBERGER, G. W. & HANSEL, W. (1955). **Conception rate and ovarian function following estrus control by progesterone injections in dairy cattle.**—*J. Anim. Sci.* **14,** 224-232. **292**

Thirty cows were observed during three ovarian cycles, during the third of which usually from the 15th day, they were treated daily, usually for 7 days, with progesterone in oil subcutaneously, 50-100 mg. Oestrus was determined by the use of a "teaser" bull, and ovulation time by rectal palpation 2-hourly after the cows had ceased to stand. Oestrus was successfully deferred for 5 days and occurred 4-6 days after the last injection; at this heat nearly half the cows showed abnor-

mality, *e.g.* in ovulation time, or by exhibiting oestrus of up to 52 hours' duration, ovulation following its cessation much as usual. Exactly half the resultant corpora lutea were abnormal, *e.g.* cystic or unduly large. Conception rate in the experimental oestrus was only 12%, but all cows conceived to service in subsequent heats.
—F. L. M. DAWSON.

CALISTI, V. & OLIVA, O. (1955). Ricerca istochimica sulla localizzazione delle gonadotropine nella placenta degli equini. **[Histochemical study of the localization of gonadotrophin in the equine placenta.]**—*Clin. vet., Milano.* **78,** 65-76. [English summary.] **293**

Samples of donkey placenta from the 47th day to the 9th month, including endometrium and allantochorion (believed to include the areas styled endometrial cups by former authors) were fixed in formol, Gendre's and Carnoy's fluid, and were stained with haematoxylin and eosin, by the methods described respectively by Baurer, Hotchkiss, and Hale, and by metachromatic methods. Only in the "cups area" could material be observed which was positive both to the Bauer and the Hotchkiss reactions but negative to that of Hale. This is consistent with the known chemical reactions of gonadotrophic hormone.
—F. L. M. DAWSON.

BAKER, L. N., ULBERG, L. C., GRUMMER, R. H. & CASIDA, L. E. (1954). **Inhibition of heat by progesterone and its effect on subsequent fertility in gilts.**—*J. Anim. Sci.* **13,** 648-657. **294**

Beginning on the 15th day after oestrus, gilts were given either 25 or 100 mg. progesterone daily to the 28th day. Oestrus was successfully inhibited. Including the control group 29 animals were used, and the low-dose gilts mostly exhibited cystic ovaries, whereas the high-dose ones came into oestrus after treatment ceased, with a high incidence of early foetal death and other functional infertility. A repeat experiment with the high dose yielded conflicting results, with a high rate of cyst production, but functional infertility was again marked.—F. L. M. DAWSON.

ROMITI, R. (1955). Ninfomania ed ormonoterapia. **[Nymphomania and hormone therapy.]**—*Zootec. e Vet.* **10,** 38-42. **295**

Forty-three cows with cystic ovarian disease of some standing were each injected i/m with 1,000 (*sic*)i.u. of a proprietary chorionic gonadotrophin extracted from pregnancy urine. In most cases the dose was repeated after 10-20 days. Usually manual rupture of the cysts was carried out at the same time, but occasionally this was unnecessary, and in other cases it had failed as the treatment of first instance. "Cure" is claimed in 82% of cases and amelioration in the remainder. [But the criterion of a cure is not clearly stated and in only 3 of the cases are the cows described as having subsequently bred.] Several of the cases belonged to one cow family. Animals showing masculinization were excluded from this trial.—F. L. M. DAWSON.

ROY, A. & ROWSON, L. E. A. (1955). **A method of inducing sterility in the cow.**—*Vet. Rec.* **67,** 177-179. **296**

Six heifers were run with a bull; a stainless steel split pin had previously been inserted butt end first into the cervix, using a specially-designed introducer, which is however rather similar to the standard type of bovine uterine biopsy instrument. The heifers were slaughtered 6 months after insertion, four of them 4 days after oestrus, and fertilized ova were recovered. During the observation period oestrus occurred irregularly every 4-5 weeks, so apparently it was implantation that was prevented. One heifer was normally pregnant, but in this case the pin had become displaced. This procedure is suggested as a means of preventing scrub cattle from breeding in countries, such as India, where religious beliefs prohibit the slaughter of cows.
—F. L. M. DAWSON.

BÖLCSHÁZY, K., CSEH, S. & PAÁL, S. (1955). Neue Untersuchungen über die Anwendung von neurotropen Stoffen in der Therapie der Unfruchtbarkeit von Stuten. **[Use of neurotropic substances in the treatment of sterility in mares.]**—*Acta vet. hung.* **5,** 83-94. [In German. Russian summary.] **297**

Of 192 mares studied, all of which exhibited uterine catarrh, usually with some measure of evident ovarian dysfunction, only 52 came into oestrus after intra-uterine irrigation with several litres of normal saline solution, 28 conceiving (53%). Of the remainder, 55% of a group treated with pilocarpine hydrochloride, 0·1 g. twice daily for 7 doses, became pregnant. The combination of this treatment with stilboestrol 110 mg., did not improve results, while luteinizing hormone in addition to it lowered the conception rate to 30%. Arecoline alone and hormones alone similarly gave poorer results.
—F. L. M. DAWSON.

WOHANKA, K. (1954). Einrichtungen, Ergebnisse und Absichten moderner Photographie des Scheidengrundes grosser Haustiere. **[Photography of the cervix in cows and mares.]**—*Arch. exp. VetMed.* **8,** 456-462. **298**

A camera attachment for obtaining photographs of the cervix of large animals is described in detail. Excellent black and white or coloured photographs can be obtained which would be invaluable for teaching or diagnostic purposes.—J. A. NICHOLSON.

MILLAR, P. G. (1955). **Plaque-like placental lesions in cattle.**—*Brit. vet. J.* **111,** 258-260. **299**

Flattened, plaque-like, symmetrical masses of polyhedral cells were noticed on the chorionic membranes of 10 cows of which 4 had aborted. Bacteriological, biological and serological investigations failed to reveal the presence of an infective agent.—T.E.G.R.

DEDIÉ, K. (1955). Zum Begriff der unspezifischen Deckinfektion. **[The term "non-specific" venereal infection.]**—*Mh. VetMed.* **10,** 204-208. **300**

An address to practising veterinary surgeons. Such organisms as *Corynebacterium pyogenes, Erysipelothrix (Listeria),* and *Pseudomonas* are normally harmless and are found in the genital tract as well as elsewhere. They may be venereally transmitted, and either then or when of endogenous origin they may become pathogenic, *e.g.* when secondary to a primary pathogen or when the standard of husbandry is low. Similarly, good husbandry conditions and/or the development of an immunity may allow of a good breeding record in herds where vibriosis or trichomoniasis is latent. There is therefore a danger in diagnosing "non-specific venereal infection", which practice has probably led to the introduction of bulls infected with vibriosis into artificial insemination centres.

—F. L. M. DAWSON.

LACOUR, P. (1955). Du cathétérisme de l'utérus dans le traitement de la métrite chronique. **[The local administration of drugs by means of a catheter, in chronic metritis.]**—*Rev. Méd. vét.* **106,** 218-222. **301**

The use of artificial insemination apparatus for the introduction of "metratonin" [oxytocin preparation?] into the uterus has resulted in a cure of 90% of chronic metritis cases.—A. SEAMAN.

BÖMER, H. (1955). Gefährliche Nebenwirkungen der Antibiotica bei der Metritisbehandlung der Kuh. **[Dangerous side-effects of antibiotics in the treatment of metritis in the cow.]**—*Dtsch. tierärztl. Wschr.* **62,** 218-219. **302**

Introduction of aureomycin and leucomycin into the uterus of cows after calving produced serious (sometimes fatal) effects, probably due to too-rapid breakdown of bacteria and re-absorption of the toxins and protein bodies. The use of slowly-soluble antibiotics is recommended, and even then their use is contra-indicated in the presence of liver disease.— F. R. PAULSEN.

FREEMAN, T. D. (1955). **Treatment of bovine and porcine metritis: report of ten cases.**—*Vet. Med.* **50,** 307-308. **303**

In 8 out of 9 cases of severe metritis in cows following calving and in prolapse of the uterus in a sow, prompt recovery occurred following insertion of a uterine tablet ("mycisulfa") containing neomycin sulphate 100 mg., sulphathiazole 2·27 g., urea 1 g. and boric acid 2 g. into each uterine horn, together with supportive measures.—A. ACKROYD.

LINK, R. P. & NALBANDOV, A. V. (1955). **Effect of desoxycorticosterone acetate on young chicks.**—*Amer. J. vet. Res.* **16,** 433-436. [Authors' summary modified.] **304**

The s/c administration of deoxycortone acetate in oily suspension to cockerels aged 4 days, at a dosage of 0·5 mg. twice daily for 7 days followed by half the dosage for 23 days, had profound effect on many organs. It caused damage to the germinal epithelium of the testicles, which was still present 60 days after the cessation of treatment. Androgenic function of the testicles, as indicated by comb growth, was slightly impaired. The heart, kidneys and adrenal glands showed marked recovery from the effect of the drug 60 days after the cessation of treatment. The administration of posterior pituitary extract reduced oedema caused by the drug.

YOUNG, G. B. (1955). **Inherited defects of dogs.**—*Vet. Rec.* **67,** 15-19. Discussion: pp. 19-24. **305**

Hereditary diseases and their control were discussed. Some defects, such as superior prognathism, cryptorchidism, etc. are undesirable abnormalities which detract from the value of the dogs; some, like haemolytic disease and haemophilia, endanger the life of

the subject. In certain breeds defects have become accepted as valuable traits, *e.g.* acromegaly in St. Bernards and Newfoundlands, achondroplasia in Pekingese, Dachshunds, King Charles Spaniels etc.—T.E.G.R.

SWANTON, M. C. & BRINKHOUS, K. M. (1955). **Hemophilic arthropathy in dogs.**—*Amer. J. Path.* **31,** 596-597. [Only abst. given. Abst. from abst.] **306**

The most common clinical manifestation of haemophilia in dogs, whose clotting defect is identical with that of human haemophilia and is similarly transmitted as a completely sex-linked recessive character, is a recurrent painful condition, with occasional swelling of major joints in the extremities. P.M. examination of the synovial membranes reveals fresh and previous haemorrhages, haemosiderosis, and mild hyperplasia.—W. R. BETT.

MOREJOHN, G. V. (1955). **A heritable crippling anomaly in the fowl.**—*Poult. Sci.* **34,** 64-67. [Author's summary modified.] **307**

The anomaly described affects the pelvis, the joints of the legs and in some cases the eyelids. It somewhat resembles other abnormalities in the fowl, namely, perosis, congenital perosis and curled toe paralysis. Genetic evidence is presented which demonstrates that this anomaly is inherited. Pelves of birds with this anomaly and with perosis were compared; both conditions were asymmetrical. No significant deviation from normal was found in bone ash of birds that were crippled or affected with perosis.

See also absts. **25** (Ps. pyocyanea as cause of sterility in cattle); **37-45** (brucellosis); **49-51** (V. fetus infection); **57** (sterility of bact. origin); **179** (nutritional anoestrus in heifers); **183** (effect of certain plants in reproductive system); **184** (subterranean clover); **213** (pregnancy toxaemia); **309** (weight of reproductive organs in mice); **321** (report, Netherlands); **327** (book, artificial insemination); **328** (book, embryology).

ZOOTECHNY

HILLERMAN, J. P. & WILSON, W. O. (1955). **Acclimation of adult chickens to environmental temperature changes.** — *Amer. J. Physiol.* **180,** 591-595. **308**

Body temperature regulation in fowls differs with breed and is most highly developed in red jungle fowls. Water consumption is important in temp. regulation of fowls. Acclimatization with regard to body temp. takes 2-5 days and with regard to respiration 8-10 days.—W. S. MARSHALL.

CHRISTIAN, J. J. (1955). **Effect of population size on the weights of the reproductive organs of white mice.**—*Amer. J. Physiol.* **181,** 477-480. [Author's summary copied *verbatim.*] **309**

Increased population density produces increased adrenal weight and decreased body, testicular, preputial gland, and seminal vesicle weights in white mice.

TECHNIQUE AND APPARATUS

SWISHER, S. N. & DALE, W. A. (1955). **Splenic aspiration biopsy in the dog.**—*Blood.* **10,** 812-819. [Interlingua summary. Authors' summary modified.] **310**

The authors described a method of partial marsupialization of the spleen of the dog which permitted repeated biopsies. They described the cytology of biopsied spleen. It was possible to demonstrate *in vivo* the splenic and portal venous circulation by X-ray examination following the injection of radio-opaque material direct into the spleen.

HOLDEN, H. F. (1954). **"Freeze-drying" with calcium carbide.**—*Aust. J. exp. Biol. med. Sci.* **32,** 893-895. **311**

A simple method is described for freeze-drying small amounts of biological material, using calcium carbide instead of solid carbon dioxide to trap water vapour. The material to be dried is frozen, preferably to -12°C. and the apparatus is then evacuated to about 5 microns. Drying is almost complete after 24 hours at -120°C. and is completed at room temp. in a further 24 hours.

—A. W. BLACKSHAW.

MCFARLAND, W. (1954). **Evaluation of bone density from roentgenograms.**—*Science.* **119,** 810-811. **312**

M. describes Brown's technique (1951). A bone is X-rayed next to a standard alloy wedge (densitometer), which is then calibrated for the film. A function transformer is set by this curve. Soft-tissue corrections are made. "Density-coefficient" is computed for the particular bone. The normal variation is 2 : 1. The technique is reproducible within 5%.

—B. M. KING.

BOGUTH, W. & JAHN, U. (1955). Über die unternormale Dispersion von Erythrozyten in Zählkammern. [**Abnormal distribution of erythrocytes in counting chambers.**]—*Zbl. VetMed.* **2,** 76-81. [English, French and Spanish summaries.] **313**

Abnormal erythrocyte distribution in counting-chambers is independent of the size of the square, but depends on erythrocyte diameter and mean number of cells counted, from which frequency distribution may be calculated.—F. R. PAULSEN.

See also absts. **72** (preservation of Tr. foetus at −79°C); **91** (virus cultivation); **95** (lyophilization of rinderpest virus); **274** (electro-ejaculation); **275** (collection of avian semen); **289** (pregnancy diagnosis); **298** (photography of the cervix).

REPORTS

GREAT BRITAIN. (1955). **Report of the Medical Research Council for the year 1953-1954.** pp. 274. London: H.M. Stat. Off. 7s. 6d. **314**

This report includes a discussion of general trends in medical research. One of the most interesting sections, entitled "Modern trends in chemotherapy", states that it is only now that the full value of the Woods-Fildes theory of chemotherapy is becoming apparent in the light of great advances in knowledge of nutritional factors essential for the growth of micro-organisms. The search for new antibiotics remains empirical. A brief description is given of factors which influence radio-sensitivity; of the action of biologically active substances on tissue cultures; and of trends in research on human malnutrition. The section on research on the mechanism of virus infection includes accounts of the "temperate" bacteriophages studied by André Lwoff and his colleagues, by N. D. Zinder, J. Lederberg, and B. D. Stocker, of the "eclipse" period of the influenza virus, and of the controversial cellular changes accompanying the release of virus. An outline is given of the programme of research work in separate research establishments supported or assisted by the Council, and a list is appended of publications by members of the Council's staff.

—W. R. BETT.

GREAT BRITAIN. (1954). **Report of the Ministry of Health for the year ended 31st December, 1953. Part II. On the state of the public health, being the annual report of the Chief Medical Officer for the year 1953.** [CHARLES, J. A.] pp. 262. London: H.M. Stat. Off. 7s. 6d. **315**

An outbreak of FOOD POISONING in Lancashire involving 1,149 persons, 5 of whom died, was caused by beef in meat pies infected with *Salmonella bovis morbificans.* In tests it was shown that the baking process, 50 min. at 320°F., was not sufficient to kill the organisms. Salmonellae occur in 0·15% of duck eggs.

Mortality from TUBERCULOSIS in human beings has fallen 65% since 1939 and 60% since 1948. Mass radiography of 12,053,011 persons revealed that 95% were normal. Chemotherapeutic trials with streptomycin, *iso*-nicotinic acid hydrazide and *p*-aminosalicylic acid showed that combined therapy with the two last mentioned is efficacious.

—J. A. GRIFFITHS.

SOUTH AUSTRALIA. (1954). **The Institute of Medical and Veterinary Science. Fifteenth Annual Report of the Council, July, 1952-June, 1953.** pp. 111. Adelaide: K. M. Stevenson, Govt. Printer. **316**

A survey of the incidence of MASTITIS due to *Streptococcus agalactiae* was made in South Australia, together with an evaluation of methods for isolation of the organism. Developmental work was carried out on a new test for the detection of *Str. agalactiae* in contaminated samples. Of 2,145 samples 24% were positive for mastitis-causing organisms. *Str. agalactiae* was isolated from 30% of the positive cases, haemolytic streptococci from 68% and the remaining 2% were probably *Str. uberis.* In the survey 1,658 cows in 81 herds were examined during the current year. Over the full period, including previous years, *Str. agalactiae* were isolated from 941 out of the 5,409 cows (17·4%). Experiments with a "spot" test and a "modified" Hotis test are discussed. There are comments on the reactions of sheep erythrocytes sensitized with staphylococcal β toxin, the effect of variation of osmotic pressure on lysis and factors affecting the production of the CAMP factor [see Christie *et al.*, (*V.B.* **16**, 1015)].

TUBERCULOSIS-like lesions in pigs slaughtered at abattoirs were examined. Of 408 lymph nodes, cultures were made from 366. *Mycobact. tuberculosis* was isolated from 118, acid-fast organisms were detected in 171 direct smears and their presence suspected in 22 smears. A total of 87 strains of *M. tuberculosis* were typed; of these 5 appeared to be bovine and 82 avian type strains. Other

organisms isolated included *Bact. coli,* haemolytic streptococci and staphylococci, *Corynebact. equi* and other corynebacteria. The majority of cases designated as TB. of swine are caused by the avian type, the next most common cause of the lesions being *C. equi.* All five cases of the bovine type infection came from one farm where offal from cattle had been fed to pigs.

In observations on JOHNE'S DISEASE 355 ileo-caecal lymph nodes were examined histologically and culturally. None of the primary cultures showed definite growth, but acid-fast bacilli were present in 23.

A survey of the incidence of BRUCELLOSIS was completed. Some comparative figures are given on the value of the "ring" test and "blood" and "whey" tests. The "whey" did not appear to be reliable but ring test was sufficiently accurate for survey purposes. For the survey, herds of more than 10 cows were selected at random to include 4% of the cows in a given area. Of 784 cows that had not been vaccinated 14·3%, in 39·5% of the herds, were infected. In 53 vaccinated herds, after making some corrections for recently vaccinated animals, only 12·7% of the herds were infected.

EPIDIDYMITIS in rams appears to be widespread and there is considerable infertility in the State. An organism was isolated and its cultural characteristics indicated that it is closely related to the *Brucella* group.

Work on MURRAY VALLEY ENCEPHALITIS continued with special reference to the general pattern of reaction in species of birds which are the essential hosts of the virus. A survey of the incidence of PSITTACOSIS in birds was carried out. Some tests of sensitivity of the virus to antibiotics are recorded.

Studies on the epidemiology of infestations with worm parasites of sheep began. Infestations with *Ostertagia* were well developed in August when lambs were three months old. The peaks of infestation with *Trichostrongylus* came later and *Chabertia* later again. Worm egg counts reached highest levels in Dec.-Jan. and declined steadily throughout summer and autumn. Worm counts from slaughtered sheep confirmed these seasonal changes. There was very little benefit, as measured by body weight, from monthly drenching with phenothiazine although egg counts of *Ostertagia* and *Chabertia* were reduced. A few sheep in both treated and control groups failed to develop immunity, continued to carry considerable worm burdens and were clinically affected. Lambs which were below or above average weight early in life were still below or above respectively at the end of the trial, whether treated or not with phenothiazine, and despite supplementary feeding. Fortnightly faecal examinations appeared to give a picture similar to weekly examinations, but monthly examinations were too infrequent. Preliminary observations in an area of higher rainfall showed that some "carry over" lambs which had not been fat enough for slaughter as lambs, harboured infestations sufficient to reduce their condition. Only *Trichostrongylus, Ostertagia* and *Nematodirus* reached significant numbers.

BUCCAL INFECTION in kangaroos has taken on an epidemic form in some areas. A method of treatment is described. A series of deaths of cows from PERITONITIS was traced to the presence of wire bristles derived from apparatus used in the preparation of brewers' grains which had been fed. A disease with some resemblance to haemolytic disease of the newborn in man was seen in lambs of Merino-Southdown cross. LEAD POISONING in ducklings was due to ingestion of flakes of metal. Severe mortality in ducks was thought to be due to botulism but was not confirmed bacteriologically. Deaths occurred on Mondays and followed the practice of cleaning up pens on Sundays and it was thought that the removal of top-soil from the pens exposed an organic mass of débris in which *Cl. botulinum* had multiplied and produced toxin. A vaccine was developed against FOWL CHOLERA.

Work on the toxicity of *Oxalis cernua* suggested that some previous estimates of the oxalate content may have been too low. Two samples had 15% of anhydrous oxalic acid (dry matter basis) which would provide 20-30 g. per day for sheep eating full amounts of the plant. Several cases of OXALIC ACID POISONING were produced by drenching sheep with oxalic acid. Acute, subacute and chronic effects were produced according to the amount administered. The preliminary work suggests that the main resistance to oxalate poisoning depends not only on the amount of *O. cernua* ingested, but also on the state of nutrition of the sheep, and possibly on the ability of the rumen bacteria and protozoa to become adapted to deal with the oxalic acid.

—H. McL. GORDON.

BERMUDA. (1954). **Staff reports of the Department of Agriculture for the year 1953.** pp. 35. Hamilton: Bermuda Press Ltd. [Report of

Govt. Veterinary Officer (EARL, E. R.) pp. 1-8.] **317**

TUBERCULOSIS is controlled in these islands by the tuberculin test and slaughter method. The intradermal test is used supplemented at times by the subcutaneous or temperature test and out of 1,318 tests carried out only four reactors were found. CONTAGIOUS ABORTION is controlled by the vaccination of calves, which for the last two years was supplemented by the vaccination of adult cattle.

For SWINE FEVER a modified live vaccine was used but only one outbreak of this disease was diagnosed and this in a swill-fed piggery.

The veterinary officer also supervised the Government horses and carried out meat inspection when private veterinary surgeons were not available, and carried out a supervisory control of the milk supply.

—D. S. RABAGLIATI.

GRENADA. (1955). **Report on the Agricultural Department for the year 1953.** pp. 38. St. George's: Government Printer. [Report of the Veterinary Officer (Pitt, E.A.M.) pp. 22-26.] $1.00. **318**

The report is largely statistical and shows the increase in the dairy herd and its produce.

Control measures against FOOT AND MOUTH DISEASE were relaxed in July 1953, except with regard to cattle from Venezuela and Colombia. RABIES was first detected in 1952 and at least three cases in cattle were diagnosed and more than 850 animals were inoculated against the disease. While it has not so far been proven the mongoose is suspected to be a vector of rabies.

MALNUTRITION, DEFICIENCY DISEASES and ENDO- and ECTO-PARASITISM continued to predominate.

The veterinary officer attended 306 cases of non-notifiable disease in animals.

—D. S. RABAGLIATI.

ZANZIBAR PROTECTORATE. (1955). **Annual Report of the Department of Agriculture, 1954.** [Tidbury, G.E.] pp. 31. Zanzibar: Government Printer. 2s. [Items of veterinary interest pp. 5-7 & 17-21.] **319**

There were no major outbreaks of disease, the only setback being one outbreak of FOOT AND MOUTH DISEASE. The outbreak took a mild form and was soon under control. One further outbreak occurred amongst cattle imported from Kenya in the Zanzibar quarantine but did not spread outside.

TRYPANOSOMIASIS was successfully treated with antrycide methyl sulphate by the itinerant trypanosome clinic. There was no change in incidence of EAST COAST FEVER, but spraying has largely been substituted for dipping.

The average milk yield per cow for a 305-day period was 217 gal.; one record cow yielded 400 gal., this being the first locally bred cow to do so.

5,907 cases of animal disease were treated by the veterinary staff in Zanzibar, and in Pemba, 4,331 cases, of which OPHTHALMIA and FOWL POX were the most common.

—D. S. RABAGLIATI.

BELGIUM. (1955). Institut pour la Recherche Scientifique en Afrique Centrale. (I.R.S.A.C.) Cinquième rapport annuel, 1952. **[Fifth Annual Report of the Institute for Scientific Research in Central Africa, 1952.]** pp. 377. Brussels: M. Hayez. **320**

The Institute was constituted by Royal decree in 1947. Scientific Commissions can be set up for a limited period by the Governing Board for the purpose of making a programme for research. Eight of such commissions are mentioned including one on human and animal pathology. A veterinarian, a former Director of the State Veterinary School is a member of this commission. In addition, there is a Consultative Commission in Africa recruited from personages in the Belgian Congo who have a special knowledge of their subject.

The report consists of three parts; the first, descriptive of the organization of the Institute, also contains the report of the Director of the Institute and reports from the directors of the scientific commissions and sections.

The second part contains a paper on tsetse flies, a lengthy description of the laboratories of the I.R.S.A.C., a report on the Belgian Congo and its mycology and the bibliography of *Plasmodium berghei.*

The third part consists of numerous short summaries of articles published by members and research workers of the I.R.S.A.C. These papers on very varied subjects contain but little of purely veterinary interest. M. Chadome devoted the beginning of the year 1952 to the examination of rodents and of farm animals on the experimental farm of Tshibati for blood parasites.

V. G. Dathier, of the Johns Hopkins

University of Baltimore, publishes a paper on "The biting response of tsetse flies."
—D. S. RABAGLIATI.

NETHERLANDS. (1955). Achtste jaarverslag (1 Mei 1953 tot en met 30 April, 1954) de Provinciale Gezondheidsdienst voor Dieren in Zuid-Holland. [**Eighth annual report of the Provincial Animal Health Service in South Holland, 1953-54.**] pp. 55. Gouda: Gezondheidsdienst voor Dieren. **321**

Of 12,918 herds tuberculin tested, 8,869 were reaction-free. A total of 57,558 cattle were reactors. The comparative tuberculin test was performed in 2,509 doubtful cases. In 225 cases avian type TB. was considered to be the cause of the reaction, as the fowls on the farm gave positive reactions to avian type tuberculin. So-called skin TB. was diagnosed in 68 herds. An account is given of the laboratory examinations and of work on STERILITY, HYPODERMA eradication and vaccination against F. & M. DISEASE.
—C. A. VAN DORSSEN.

U.S.A. (1952). **Annual report 1950-51, Livestock Conservation, Inc., formerly National Livestock Loss Prevention Board and National Livestock Sanitary Committee.** pp. 24. Chicago: Livestock Conservation, Inc. **322**

This report is almost entirely concerned with the means to be used to avoid losses among livestock while in transit. There are many plates and diagrams to illustrate the means to reduce bruising and to avoid crippling and actual deaths while in transit. Bruises are said to cause a loss of $40,000,000 and crippling and deaths a further $10,000,000 a year in the U.S.A.

There is a section on dealing with warbles (*Hypoderma*). The spray used is 3½ lb. of 5% rotenone dust plus 2 lb. of wetting agent ("dreft", etc.) in 100 gal. of water applied by power sprayer.—J. A. GRIFFITHS.

BOOK REVIEWS

—. (1954). **Advances in virus research. Vol. II.** [Edited by: SMITH, K. M. & LAUFFER, M. A.] pp. x+313. New York: Academic Press Inc.; (London: Academic Books Ltd.) $7.00. **323**

The chapters of this volume are:— Incomplete forms of influenza virus, by P. von Magnus; Characteristics of viral development in isolated tissues, by W. W. Ackerman & T. Francis, Jr.; The action of ionizing radiation on viruses, by E. Pollard; The chemical constitution of viruses, by C. A. Knight; Electron microscopy of viruses, by R. C. Williams; The hydration of viruses, by M. I. Lauffer & I. J. Bendet. There are also two chapters on plant viruses.—R.M.

ANON. (1955). **Foreign animal diseases. Their prevention, diagnosis and control. Report of Committee of the United States Livestock Sanitary Association, 1954.** pp. 265. Trenton, N.J. U.S. Livestock Sanitary Association. **324**

This useful booklet is designed to acquaint American veterinarians with the salient features of exotic diseases which might be introduced into the U.S.A. either accidentally or deliberately.

The preliminary chapters deal with such matters as the means by which disease may be introduced, how it may spread and the chain of agencies which exist in the U.S.A. for controlling disease in livestock. Then follow descriptions of certain diseases:— In pigs, African swine fever and Teschen disease. In cattle, infectious petechial fever; pleuro-pneumonia; East Coast fever; ephemeral fever; infectious epididymitis and vaginitis; lumpy skin disease; malignant catarrh and rinderpest in that order — one wondered in passing why such a comparatively unimportant disease as infectious petechial fever was given first place while rinderpest comes last. In sheep, bluetongue; contagious agalactia; virus abortion; louping-ill; Nairobi sheep disease; sheep pox and scrapie. In cattle and sheep, heartwater; trypanosomiasis; Rift Valley fever and streptothricosis. In cattle, sheep and pigs, anthrax; foot and mouth disease and other vesicular diseases. In horses, Venezuelan encephalomyelitis. In poultry, fowl plague and Newcastle disease. There are also a number of appendices on such matters as disinfectants, parasiticides, control measures, diagnostic tests, laboratory specimens, etc.

The descriptions of the various diseases although brief are in general accurate and omit very few of the salient points. A few inaccuracies have been noticed and are listed so that they may be corrected in future editions. They are:— (1) in the account of rinderpest the statement "that sheep and goats Scott in *Bull. epiz. Dis. Afr.* **3.** 117-119. (2)

may be infected only experimentally" is wrong. Natural outbreaks of the disease do occur in these species particularly in Asia—the literature has recently been reviewed by Pigs should be added to the list of susceptible hosts, as natural outbreaks in both domesticated and wild pigs have been recorded. [See Hudson & Wongsongsarn, 1950 (*V.B.* **21**, 2016)]. (3) The definition of the disease on p. 80 should be amended to read "ruminants, particularly cattle, and swine". (4) Western Europe is not free from contagious pleuro-pneumonia as the disease is still present in Spain and Portugal. (5) On p. 102 the statement that an acute highly fatal form of contagious agalactia characterized by subcutaneous oedema occurs in goats and the footnote at the bottom of the page need clarification. The disease of goats to which Edward, D. G. ff. (1953) referred and for the causal organism of which he suggests the name *Asterococcus mycoides* var. *capri* is infectious caprine pleuro-pneumonia. Subcutaneous oedematous swellings do occur when this organism is injected experimentally, but these swellings are not a feature of natural outbreaks of the disease in Africa and Asia. A disease of goats characterized by subcutaneous oedema has been described in Greece by Melanidi [*V.B.* **22**, 1331] and by Christodoulou, T. & Tarlatzis, C. (1954). The causal organism appears to be very similar to that of infectious caprine pleuro-pneumonia. Incidentally infectious caprine pleuro-pneumonia is a very serious exotic disease capable of causing heavy losses in goats. A description might be included with advantage in future editions. (6) The name Pole is misspelt on p. 111, it should be Pool.

One was rather surprised to find only one disease of horses included, namely Venezuelan encephalomyelitis. Possibly this is a reflection of the rapidly diminishing economic importance of the horse in America, but a description of African horsesickness, epizootic lymphangitis and glanders would have been useful. Other diseases which have been omitted but which seem to merit inclusion under the appropriate hosts are melioidosis and Japanese encephalitis. Anthrax, although by no means an exotic disease in America, is included and the suggestion that blood for diagnosis may be collected from a cut over the jugular vein would not meet with approval in Great Britain.

Perhaps the least satisfactory section is that dealing with streptothricosis. It would have been better to omit this since our present knowledge of the disease and its causation is limited and it is hardly the type of disease likely to spread rapidly or widely in the U.S.A. To the description of each disease, with the exception of streptothricosis, a list of selected references to the literature is appended.

The book provides a very convenient source of information and will be of value in many parts of the world where such information is not always readily available.

—. (1954). **The chemical pathology of animal pigments. A Symposium held at The London School of Hygiene and Tropical Medicine on 20 February, 1954.** [Organized and edited by: WILLIAMS, R T.] pp. 84. Cambridge: At the University Press. Biochemical Society Symposia No. 12. 12s. 6d. **325**

The high quality of Biochemical Society Symposia is maintained in this twelfth report. This edition reports seven papers entitled:—Normal and pathological metabolism of porphyrins; Patterns of porphyrin excretion; Pathology of acute porphyria; Chemical pathology of bile pigments; Methaemoglobin and sulphaemoglobin, and The chemical pathology of carotenoids.—D. S. PAPWORTH.

CHOPRA, R. N. [Director, Drug Research Laboratory, Jammu Tawi.], BADHWAR, R. L. [Officer-in-Charge, Minor Forest Products Section, Forest Research Institute, Dehra.] & GHOSH, S. [Emeritus Professor of Chemistry, School of Tropical Medicine, Calcutta.] (1949). **Poisonous plants of India.** pp. liv + 762. Delhi: Manager of Publications. The Indian Council of Agricultural Research. Scientific Monograph No. 17. Rs. 30.0 or 46s. **326**

An outline of the botanical, chemical, pharmacological and economic aspects is presented and about 700 poisonous plants are dealt with, the subject matter being of interest to botanists, chemists, medical practitioners, veterinarians, and workers engaged in agriculture or forestry. The classification of the botanical families is according to the arrangement of Bentham and Hooker, this classification being followed in the *Flora of British India,* by Hooker. When names given by modern botanists to certain genera and species differ from the corresponding name in the *Flora of British India,* the latter name is given as a synonym. Vernacular names are also given. The book comprises a list of 164 illustrations, a glossary of botanical terms and an extensive introduction, followed by a detailed

description of 59 plant families. There is an index of botanical names.—E. MARSH JONES.

—. (1955). **The artificial insemination of farm animals.** [Edited by: PERRY, E. J.] pp. xvi + 341. New Brunswick, N.J.: Rutgers University Press. 2nd revised edit. $5.00. **327**

This is a symposium by nine authors, of whom one is British and only two are veterinary surgeons. The insemination of equine species, birds, pigs and dogs is discussed at some length, as well as that of cattle, sheep and goats. The book is written more from a farmer's than from a scientist's point of view; though there is an extensive bibliography there are notable gaps in it, *e.g.* omission of reference to collection of semen from bulls by electrical stimulation and to the Danish work on semen evaluation, and that by Bishop & Hancock in England. Revision does not appear to have been carried out since 1952; hence only the pilot work on deep freezing receives a brief note. There is an account of the hormone treatment of infertility for many of the species dealt with—adequate for agricultural students but not detailed enough for a veterinarian. The best technical chapter is that on the sheep and goat, which has a wealth of detail gained from practical experience such as has probably not been compiled before. The British reader will also find the chapters on bird and equine work interesting and stimulating. The whole book is written in a clear and agreeable style, and is freely illustrated with good photographs.—F. L. M. DAWSON.

ZIETZSCHMANN, O. [Dr. phil et. Dr. med. vet. h.c., emerit. o. Professor der Anatomie an der Tierärztlichen Hochschule zu Hannover.] & KRÖLLING, O. [Dr. med. vet., ehemal. o. Professor der Anatomie an der Tierärztlichen Hochschule zu Wien]. (1955). Lehrbuch der Entwcklungsgeschichte der Haustiere. [**Embryology of domestic** animals.] pp. xii + 482. Berlin & Hamburg: Paul Parey. 2nd revised edit. DM 88. **328**

The subject matter of this textbook of animal embryology for students of veterinary science and animal breeding is divided into three main parts. The first contains chapters on the formation, structure and function of ova and spermatozoa, the process of fertilization and the sexual cycle in man and domestic animals. Part two deals with general embryology and includes chapters on cell-cleavage, formation of germinal layers, the embryonic body, membranes and placenta. Part three describes the development of organ systems from ecto-, meso-, and endoderm. There are 597 excellent illustrations, specially of the embryonic development of the larger domestic animals and a subject index but no bibliography. Paper, binding and print are of very good quality.—E.G.

CALHOUN, M. L. [Professor and Head, Department of Anatomy, School of Veterinary Medicine, Michigan State College.] (1954). **Microscopic anatomy of the digestive system of the chicken.** pp. x + 108. Ames, Iowa: The Iowa State College Press. $2.50. **329**

This book is a revised edition of a thesis on the subject. The material is presented in three main sections: Review of the Literature; Materials, methods and results; and Discussion; and deals with the whole of the alimentary canal, yolk sac, liver and pancreas. A very brief description of the gross anatomy of the digestive system is also included. For reference purposes this presentation is unsatisfactory, in that each part of the digestive system is mentioned under each of the three main headings. It would be more readily available if brought together under the heading of each organ described.

The author's results are based mainly on work undertaken on five birds varying in age from thirty-six hours to two years. A comprehensive histological study is not undertaken but a description is given of the various tissues seen throughout the digestive system.

The text is abundantly illustrated with photographs and photomicrographs, most of which are very clear and provide supporting evidence for the author's findings. There are 325 references.—F. T. W. JORDAN.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

—. (1955). **Advances in cancer research. Vol. III.** [Edited by: GREENSTEIN, J. P. & HADDOW, A.] pp. viii + 369. New York: Academic Press Inc.; (London: Academic Books Ltd.) $8.50.

—. (1955). **International review of cytology. Vol. IV.** [Edited by: BOURNE, G. H. & DANIELLI, J. F.] pp. 419. New York: Academic Press Inc.; (London: Academic Books Ltd.) $9.00.

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